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"Guessing is not knowing, and faith is not science."

B. D. WALSH.



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PREFACE.

THE time has arrived when, according to our biennial custom, we should address a few words to our readers.

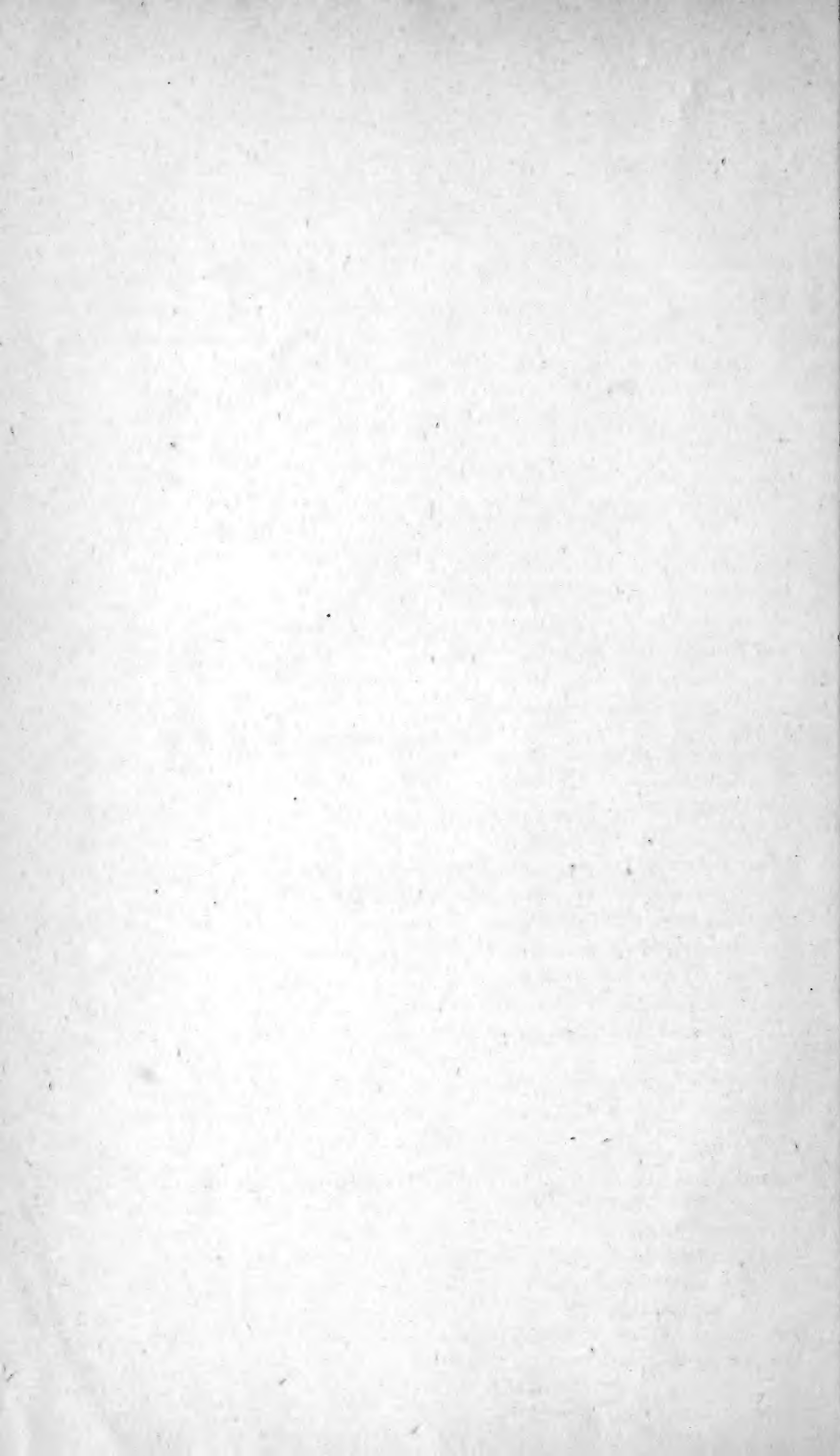
As regards mere financial matters, the current circulation of the Magazine is greater than at any former period; the receipts for Vol. viii slightly exceeding those for Vol. iv, notwithstanding the advantage the latter has received from the sale of back stock.

Having no pecuniary end in view (other than that of endeavouring to "make both ends meet") we have been enabled to maintain a thoroughly independent position, and have thereby gained, as we believe, the confidence of those whose esteem we value.

The character of the Magazine has remained almost unaltered from its commencement, and is, judging from the experience of nine years, apparently that best suited to the majority of its supporters. At all events, we have not exhibited that most inherent sign of weakness—instability of purpose. Controversy has been avoided as much as possible, because in it there is always a tendency to allow feeling to obtain the mastery over judgment. The pruning-knife has occasionally been vigorously applied; and, although its use may have sometimes caused temporary irritation, we feel sure that, in most cases, calm reasoning has justified the operation. Our object is to further entomological science, not to gratify the self-esteem of individuals.

1, Paternoster Row :

May, 1873.



	PAGE
<i>Arthronomalus longicornis</i> , Leach (<i>electricus</i> , Gervais), On reversed motion of the limbs of	218
<i>Aspidisca</i> bred from poplar leaves	17
<i>Bagous</i> new to Britain, Note on a species of	242
<i>Balaninus brassicæ</i> , Fab., On the spinning of the larva of	192
<i>Baridius scolopaceus</i> , Germ., Note on further British examples of	117
Blind Beetles in bees'-nests, Note on	12
<i>Brachycentrus</i> and its case, The larva of the Trichopterous genus	166
"Breck"-sand, Norfolk, On the Lepidoptera of the... ..	18
<i>Brephos notha</i> , Description of the larva of	41
British Coleoptera, Additions to the list of	5, 156
" " Notes on, including three species new to our list	36
" <i>Dolichopodidæ</i> , List of... ..	71
" Hemiptera—an additional genus and species	4
" " : new species, Homoptera	210
" " —Homoptera, On certain [Revision of the family <i>Delphacidæ</i>]	238
" " " " " [Revision of the genus <i>Acocephalus</i> , and descriptions of two species not hitherto regarded as British]	264
" <i>Psocidæ</i> , An addition to the list of (<i>Stenopsocus stigmaticus</i> , Imhoff and Labram)	63
" <i>Syrphidæ</i> , Additions and corrections to the list of	251, 258
" Tortrices, Notes on	25, 212, 266
" " On the, of the genera <i>Dicrorampha</i> and <i>Endopisa</i> , as restricted by Wilkinson	25
<i>Bruchus</i> , Note on swarms of	217
" On the superficial sexual characters of the British species of	191
Butterflies at sea	246
" from the West Coast of Africa, Description of two new	232
Butterfly (<i>Euplœa</i>) from Java, Description of a new	263
<i>Calosoma sycophanta</i> at Plymouth	117
Capture of a <i>Scymnus</i> new to the British List	117
" " <i>Lymexylon navale</i> in Cheshire, Note on a recent	158
" " <i>Tachinus rufipennis</i> in Yorkshire... ..	159
Captures at Weybridge	119
" " Witherslack	66, 140
" during the month of March	21
" of Hemiptera	193
" " " and Coleoptera at Deal, Notes on	192
" " Lepidoptera in 1872	248
" " " " Sherwood Forest	140
" " " " the Isle of Sheppy, in 1872	162
" " " " near Aberdeen, in 1871... ..	42
" " " " Fleetwood	162
<i>Carabidæ</i> , Notes on <i>Cicindelidæ</i> and, and descriptions of new species	49
<i>Carabus auratus</i> in London, Capture of	11
" <i>intricatus</i> in South Devon, Capture of	11

	iii.	PAGE
"Carding" and pinning of insects, Note on the	...	219
„ beetles, Note on	...	136
<i>Carsia imbutata</i> , Natural history of	...	92
<i>Celaena Haworthi</i> , „ „ „	...	195
Chalcidoides larvæ in the imago of <i>Cynips</i> , Note on the occurrence of	...	13
Change of nomenclature (<i>Phleophilus</i> , Schön.)	...	86
<i>Chærocampa Celerio</i> at Cromer	...	272
<i>Chrysopa</i> , Note on the oviposition of	...	60
„ <i>septempunctata</i> , Wesmael, Duration of the egg-state of	...	88
<i>Cicindelidæ</i> and <i>Carabidæ</i> , Notes on, and descriptions of new species	...	49
<i>Cloantha solidaginis</i> , Description of the larva of	...	92
<i>Clytus erythrocephalus</i> , Fab., Note on the occurrence in England of	...	215, 268
<i>Coleoptera</i> , &c., Additions to the list of British, including description of a new species of <i>Thyamis</i>	...	156
„ allied to <i>Meloë</i> , On a new genus and species of	...	31
„ at Caterham, Surrey, Notes on	...	159
„ „ Deal, Notes on Captures of <i>Hemiptera</i> and	...	192
„ British, Additions to the list of	...	5
„ of Japan, with descriptions of three new species, On the <i>Pectinicorn</i>	...	277
„ from Chili, Descriptions of new species of	...	207
„ „ Japan (<i>Endomychidæ</i> and <i>Cucujidæ</i>), Descriptions of a new genus and two new species of	...	257
„ „ the Manchester district, Notes on rare British	...	270
„ in Kent, &c., Captures of	...	118
„ „ the Isle of Sheppy, &c., Captures of	...	216
„ „ „ New Forest, Notes on	...	86
„ near Maidstone, Captures of	...	12
„ Notes on British, including three species new to our list	...	36
„ „ „ winter captures of	...	269
„ of Slapton, Notes on the, with description of a new species of <i>Scopæus</i>	...	33
<i>Colias Edusa</i> , Early appearance of	...	68
Colour and edibility of larvæ, Notes on the relations between	...	45, 68
<i>Cossonus linearis</i> of British collections, Note on the	...	243
<i>Crambus</i> (<i>verellus</i> , Zk.), A new British	...	88
<i>Crinodes Sommeri</i> and <i>Tarsolepis remicauda</i> , Note on	...	98, 111, 164
„ „ „ Answer to Mr. Ritsema's note on	...	198
<i>Cryptophagus crenatus</i> , Gyll., Note on the synonymy of	...	244
<i>Cucullia absynthii</i> in Somersetshire	...	161
„ <i>asteris</i> , &c., New locality for	...	162
Curious locality for <i>Homalium Allardi</i>	...	268
<i>Damaster</i> from Japan, Description of a new species of	...	131
<i>Dascillidæ</i> , Observations on some British species of, with description of a new species of <i>Cyphon</i>	...	154
<i>Depressaria depressella</i> , On the larva of	...	144
„ <i>Douglasella</i> near Blackpool	...	113
„ <i>Yeatiana</i> , Larva of	...	113
<i>Dianthœcia cæsia</i> , Description of the larva of	...	64
<i>Dicrorampha consortana</i> and <i>Retinia Buoliana</i> at Preston	...	67

"Die Pflanzen-Feinde aus der Classe der Insecten," by J. H. Kaltenbach ..	22
Diurnal Lepidoptera from Madagascar, Descriptions of new species of ..	2
Does <i>Orthosia ypsilon</i> hibernate as egg or larva? ..	66
Dolichopodidæ, List of British ..	71
Dragon-flies at sea ..	273
Edleston, Robert Smith, Death of ..	167
Eidophasia Messingiella and Catoptria aspidiscana, Note on ..	44
" " near Wolverton ..	67
Elatér pomonæ, Note on ..	268
Endomychidæ collected in Japan by G. Lewis, Esq., A list of, with descriptions of new genera and species ..	205
Endopisa nigricana, Note on ..	198
Entomological Society, Haggerston ..	199
" " Proceedings of the 24, 47, 69, 167, 199, 221, 250, 274, 292	
" " " " " " South London ..	69, 220
Ephestia artemisiella, Description of the larva, &c., of ..	143
Epidemic among <i>Xanthochlorus</i> (tenellus, Wied. ?), On a fungoid ..	45
Erotylidæ collected by George Lewis, Esq., in Japan, A descriptive list of ..	184
Eubolia lineolata, Description of the larva of ..	197
Eulepia cribrum at Wimbledon Common ..	139
Eupithecia pygmæata, Description of the larva of ..	65
" " Larvæ of ..	42
" subciliata, Description of the larva of ..	16
" " Note on the habits of ..	65
" togata, Description of the larva of ..	114
" " On the habits of ..	113
European Butterfly, On the supposed new species of ..	290
Extraordinary circumstance regarding a Dipterous insect ..	46
" migration of <i>Pyrameis cardui</i> ..	149
Fen-district, Notes on collecting in the ..	89
Formica fusca; two ♂ in copulâ with one ♀ ..	120
Forms of <i>Zygæna trifolii</i> , On the ..	14
Fungoid epidemic among <i>Xanthochlorus</i> (tenellus, Wied. ?), On a ..	45
Gray, George Robert, Esq., F.R.S., Death of ..	23
Haggerston Entomological Society ..	199
Halonota grandævana, Zeller, Occurrence in Britain of ..	272
Hemerobius inconspicuus (Mc L.) at Rannoch ..	88
Hemiptera and Coleoptera at Deal, Notes on captures of ..	192
" British—an additional genus and species ..	4
" " : new species (Homoptera) ..	210
" Captures of ..	193
" -Homoptera, On certain British [Revision of the Family Delphacidæ] ..	238
" " " " " [Revision of the genus <i>Acocephalus</i> and descriptions of two species, not hitherto regarded as British] ..	264
Heteromera, Notes on, and descriptions of new genera and species 97, 133, 149, 181, 201, 233, 259	
Homalium Allardi, Curious locality for ..	268
Hydradephaga near York ..	12

	v. PAGE
Hydrophilidæ from New Zealand, Description of a new genus and species of, and of a new species of Phillydrus from Great Britain	152
Hydroptilidæ, Proposed revision of the Trichopterous family	120
Hymenoptera," Part 2, compiled by the Rev. T. A. Marshall, "A Catalogue of British... ..	221
Ichneumonidæ, Descriptions of two new species of (Anomalon and Mesoster-nus) from Great Britain	240
Ilybius ænescens, Thoms., Note on	60
Instructions for the collection and preservation of Neuropterous Insects	99, 168, 225
Isolation, Note on possible effects of	243
Japan, On a new Coleopterous genus from	278
Laboulbène's opening address as President of the French Entomological Society, Extract from Dr.	94
Lamprias (Lebia) chrysocephalus, Motsch., Note on	59
Larridæ (Hymenoptera), Description of a new genus and two exotic species of the family	121
Larva of Acronycta alni, Note on the	195
" " Anisopteryx æscularia, Description of the	272
" " Balaninus brassicæ, Fab., On the spinning of	192
" " Brepnos notha, Description of the	41
" " Cloantha solidaginis, Description of the	92
" " Depressaria depressella, On the	144
" " " Yeatiana	113
" " Dianthæcia cæsia, Description of the	64
" " Eubolia lineolata, Description of the	197
" " Eupithecia pygmæata, Description of the	65
" " " subciliata, " " " 	16
" " " togata, " " " 	114
" " Nola strigula, Description of the	15
" " Tephrosia consonaria, Description of the	17
" &c., of Ephestia artemisiella, Description of the	143
" The, of the Trichopterous genus Brachycentrus and its case... ..	166
Larvæ of Eupithecia pygmæata	42
Lasiosomus enervis, H.-Schf., near Chatham, Capture of	88
Laverna atra, Habit of	66
Lepidoptera at Guestling in 1872	218
" first discovered in Britain by the late Mr. J. C. Dale, List of the species of	271
" in 1872, Captures of	248
" " Sherwood Forest, Captures of	140
" " the Isle of Sheppy in 1872, Captures of... ..	162
" near Aberdeen in 1871, Captures of	42
" " Fleetwood, Captures of... ..	162
" observed in Sussex during 1872	249
" of the "Breck"-sand, Norfolk, On the	18
" " " Lancashire and Cheshire Sand-hills, Notes on the	21
" Rare, taken in the Isle of Man	44, 68, 113, 164
Licinus silphoides, Strange habitat of	119
Liosomus, Note on a second British species of	242
Locality for Homalium Allardi, Curious	268

	PAGE
<i>Lycæna Arthurus</i> , a new European Butterfly, Description of	263 (290)
<i>Lymexylon navale</i> in Cheshire, Note on a recent capture of	158
<i>Magdalinus carbonarius</i> , Note on the food-plant of	39
Meloë, A new genus and species of Coleoptera allied to	31
Microscopic observation, On mounting small insects for... ..	273
Migration of <i>Pyrameis cardui</i> , Extraordinary	149
Mimetic analogy, A case of, among the British Geometræ	163
Mimicry between spiders and flowers	69
„ in the colours of insects	78
Morayshire Noctuæ in 1872	141
Mounting small insects for microscopic observation, On... ..	273
<i>Neolucanus</i> from Northern India, A new species of	53
Neuropterous insects, Instructions for the collection and preservation of	99, 168, 225
New names for a long known Lepidopteron	94
„ sugaring lamp	199, 220, 250
<i>Niptus hololeucus</i> , Unusual abundance of	119
<i>Nola strigula</i> , Description of the larva of... ..	15
Notes on a paper entitled "Die schweizerischen Arten der Bienen-Gattung Anthidium," [issued] by Walther Schmidt., Oberfoerster	95
„ „ British Coleoptera, including three species new to our list	36
„ „ British Tortrices	124, 212, 266
„ „ „ „, Remarks on Mr. Barrett's	176
„ „ captures of Hemiptera and Coleoptera at Deal	192
„ „ Cicindelidæ and Carabidæ and descriptions of new species	49
„ „ Coleoptera at Caterham, Surrey	159
„ „ „ in the New Forest	86
„ „ collecting in the Fen-district	89
„ „ forcing <i>Acidalia</i> larvæ	197
„ „ Heteromera and descriptions of new genera and species	97, 133, 149, 181 201, 233, 259
„ „ rare British Coleoptera from the Manchester district	270
„ „ the breeding of <i>Antispila Rivillei</i>	54
„ „ „ Coleoptera of Slapton, with description of a new species of <i>Scopæus</i>	33
„ „ „ Lepidoptera of the Lancashire and Cheshire sand-hills	21
„ „ two new genera of Psocidæ	145
„ „ winter captures of Coleoptera	269
Occurrence in Britain of <i>Halonota grandævana</i> , Zeller	272
„ „ England of <i>Anisotoma brunnea</i> (Sturm), Er., a distinct species from <i>A. obesa</i> , Schmidt, Note on the... ..	135
„ „ England of <i>Clythus erythrocephalus</i> , Fab., Note on the	215, 268
„ „ near Dover of <i>Syntomis Phegea</i> , a genus and species new to Britain	160
„ „ of <i>Apatura Ilia</i> in England	217, 244
„ „ <i>Sisyrä Dalii</i> , McLach., in abundance	62
<i>Ocyptus morio</i> , Auctt., Note on	60
On the superficial sexual characters of the British species of <i>Bruchus</i>	191
<i>Orthosia ypsilon</i> , Does, hibernate as eggs or larva?	66
<i>Otiorhynchus monticola</i> , Germ., Note on	290
„ „ <i>tenebriosus</i> , Note on	269

	vii.
	PAGE
Oviposition of <i>Chrysopa</i> , Note on the	60
„ „ <i>Pterophorus pentadactylus</i> , L., in confinement, On the ...	144
<i>Papilio</i> from Lagos, Description of a new species of ...	146
Parry, Thomas, Death of ...	292
Pectinicorn Coleoptera of Japan, with descriptions of three new species, On the	277
<i>Pelobius Hermanni</i> , The sounds produced by ...	60
<i>Pentatoma juniperina</i> , Note on the capture of ...	291
<i>Philhydus</i> from Great Britain, Description of a new genus and species of Hydrophilidæ from New Zealand, and of a new species of ...	152
<i>Pieris Daplidice</i> at Dover ...	111
„ „ near Folkstone ...	111
<i>Plusia orichalcea</i> at Glanville's Wootton and other captures of Lepidoptera	88
<i>Polia chi</i> , Natural history of ...	290
Possible effects of isolation, Note on ...	243
Practical hint for Lepidopterists ...	45
Proceedings of the Entomological Society of London ... 24, 47, 69, 167, 199, 221, 250, 274, 292	
„ „ „ South London Entomological Society ...	69, 220
Psocidæ, An addition to the list of British (<i>Stenopsocus stigmaticus</i> , Im- hoff and Labram) ...	63
„ Descriptions of a new genus and five new species of exotic ...	74
„ Notes on two new genera of ...	145
<i>Pterophorus pentadactylus</i> , L., in confinement, On the oviposition of ...	144
<i>Ptinus testaceus</i> , Ol., Note on <i>Tribolium confusum</i> , Duv., and ..	268
<i>Pyrameis cardui</i> , Extraordinary migration of ...	149
Rare British Coleoptera from the Manchester district, Notes on ...	270
„ Lepidoptera taken in the Isle of Man ...	44, 68, 113, 164
Ravages of <i>Anobium</i> ...	59
Relations between colour and edibility of larvæ, Notes on the ...	45, 68
Remarks on Mr. Barrett's "Notes on British Tortrices" ...	176
<i>Retinia Buoliana</i> at Preston, <i>Dicrorampha consortana</i> and ..	67
Reversed motion of the limbs of <i>Arthronomalus longicornis</i> , Leach, (electricus, Gervais), On ...	218
<i>Rhinoncus subfasciatus</i> , Saltatory power of ...	119
<i>Rhopalocera</i> , Descriptions of seven new exotic ...	83
Robinson, Coleman T., Death of ..	96
<i>Scymnus</i> new to the British List, Capture of a ...	117
Sherwood Forest, A short account of a four days' trip to ...	289
<i>Sisyr Dali</i> , McLach., in abundance, Occurrence of ...	62
Sound, The, produced by <i>Pelobius Hermanni</i> ...	60
South London Entomological Society, Proceedings of the ...	69, 220
<i>Sphinx convolvuli</i> and its habits, On the larva of ...	286
Spinning of the larva of <i>Balaninus brassicæ</i> , Fab., On the ...	192
<i>Sterrha sacraria</i> at Manchester... ..	139
Sugaring Lamp, New ...	199, 220, 250
Swarms of <i>Bruchus</i> , Note on ...	217
<i>Syntomis Phegea</i> , L., a genus and species new to Britain, Occurrence near Dover of ...	160
Syrphidæ, Additions and corrections to the list of British ...	251, 281

	PAGE
<i>Tachinus rufipennis</i> in Yorkshire, Capture of	159
<i>Tarsolepis remicauda</i> , Note on <i>Crinodes Sommeri</i> and	111, 164, 198
<i>Tephrosia consonaria</i> , Description of the larva of	17
"The British species of <i>Crambus</i> ;" by F. Buchanan White, M.D... ..	47
"The Micrographic Dictionary," 3rd edition, edited by J. W. Griffith, the Rev. J. M. Berkeley, and T. Rupert Jones	22
Thrips soiling framed engravings	13
Tortrices, Notes on British	124, 212, 266
" On the British, of the genera <i>Dicrorampha</i> and <i>Endopisa</i> , as re- stricted by Wilkinson	25
Tortricidæ at Guestling	249
<i>Trachypheus alternans</i> , Note on	290
"Transactions of the Norfolk and Norwich Naturalists' Society, 1871-72	47
<i>Tribolium confusum</i> , Duv., and <i>Ptinus testaceus</i> , Ol., Note on	268
Trichopterous family, <i>Hydroptilidæ</i> , Proposed revision of the	120
" genus <i>Brachycentrus</i> and its case, The larva of	166
Trichopterygia, Notes on, with descriptions of two new species	178
<i>Triphæna subsequa</i> , Early appearance of	68
" " Natural history of	56
<i>Vanessa antiopa</i> at Cambridge	109
" " " Chatteris	110
" " " Darlington, &c.	111
" " " Great Yarmouth	88
" " " Guestling, near Hastings	138
" " " Hitchin	107
" " " Hull	109
" " " Lewisham	107
" " " Ramsey, Hunts.	110
" " " Southend, Essex	109
" " " Southsea	138
" " " Tunbridge Wells	110
" " " Twickenham	109
" " in Dumfries-shire... ..	137
" " " Hyde Park	109
" " " January	217
" " " Leicester	110
" " " Leicestershire	161
" " " Middlesex	110
" " " Morayshire... ..	108, 161
" " " Northumberland and Durham	245
" " " November	161
" " " Suffolk	138
" " " Surrey	110
" " " the West Riding	110
" " " Yorkshire	245
" " near Colchester	137
" " " Eltham	109, 137
" " " Erith	108
" " " Folkstone	109
" " " Herne	108

	ix.
	PAGE
Vanessa Antiopa hibernated at Folkestone	290
„ „ near Leeds	109
„ „ „ Norwich	108
„ „ „ York	110
„ „ „ Pieris Daplidice, and Argynnis Lathonia at Dover	111
„ „ „ „ „ „ „ „ near Folkstone ..	111
„ „ „ The recent invasion of Great Britain by ...	105, 130, 131, 138
Wesmael, Professor, Death of	167
Winter captures of Coleoptera, Notes on	269
Xanthochlorus (tenellus, Wied. ?), On a fungoid epidemic among	45
Xylotrupes dichotomus, L., Note on	289
Zoological Record, The	273
Zygæna trifolii, On the forms of	14

INDEX OF SUBJECTS NOTICED IN THE PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF LONDON.

	PAGE
Abhandlungen der schweiz. Naturforsch. Gesellschaft, Entomological papers in	200
Acentropus, Supplementary notes on	200
Acherontia Atropos, Sound produced by	70
„ „ Variety of larva of	200
Achreioptera, On the order	70
Acronycta psi and tridens, Notes on	274
Agrotera nemoralis from Abbot's Wood	70
Anaitis plagiata, Forms of	274
Annual Meeting	250
Anomalon fasciatum, new to Britain	200
Antispila Rivillei, Mines of	48
Ants in the Island of May, Plague of	48
Aræocerus coffeæ alive at Basle	276
Argynnis Lathonia from Dover	167
Aspidisca from Oregon	24
Atropos and Clothilla, Nomenclature of	167, 200, 276
'Bibliotheca Entomologica,' List of papers omitted from Hagen's	274
Bombycidæ from Natal	276
Buprestidæ from the Pelew Islands, &c.	221
„ „ Sexes of	24
Butterflies with eye-like spots, Sexual difference in	276
Calosoma sycophanta on the putrid body of a dead man	48
Cerastis erythrocephala from Darenth Wood	250
Cetoniidæ from Java	48
Coccus on cork-oak, Berry-like species of	47
Coleoptera, New British species of	200, 221, 275
Cossonidæ from Japan, List of species of	221
Crambus verellus from Folkstone	200
Cynips, On the sexes of	292
Dragon-flies attacked by birds	48

	PAGE
Fertility and infertility in Lepidoptera ..	48
Formicidæ from Calcutta ..	167, 275
Fossil Butterfly in the Stonesfield slate ..	167
Gall on cinnamon ..	251
Gasteracantha, Monograph of the genus ..	251
Geodephaga from Japan, List of ..	274
Gnat, On the habits of the ..	167
Gonopteryx rhamni feeding on Rhamnus alaternus ..	48
Hydroptilidæ, Monograph of the family ..	251
Hymenoptera from India ..	250
„ „ Japan ..	24, 274
Ichneumonidæ, &c., Catalogue of British ..	167
„ pedunculated cocoon of Ceylonese species of ..	270
Lepidoptera from Japan ..	275
„ Varieties of British ..	200
Longicorns from Chontales, List of ..	24
Lucanoid Coleoptera, Supplementary paper on ..	292
Luciola italica, Distribution of ..	251
Microgaster from Ceylon, Notes on species of ..	48
Mimicry between Diptera and Hymenoptera ..	275
„ „ a Pentatoma and the bark of trees ..	292
Myriopod from California, Living specimen of ..	251
Nematus destroyed by Picromerus bidens ..	200
Nephopteryx argyrella from Gravesend ..	200
Nomenclature ..	70, 167, 200, 276
Ozognathus cornutus bred from gall from California ..	167
Papilionidæ, Variation of neuration in ..	167
Paussus from Abyssinia, Species of ..	275
Phylloxera vastatrix ..	221
Phytophaga from Japan, List of ..	200
Pieris Daplidice from Dover ..	167
Psila rosæ, Larvæ of, discharged in phlegm ..	274
Pteris aquilina, Gall-making Diptera on ..	70
Pulex from nest of mouse, Species of ..	250
Queen-Bees, do they sting? ..	200
Silk from broken cocoons, Method of obtaining ..	275
Sphingidæ from Japan, Drawings of transformations of ..	221
Syrphidæ, New British species of ..	292
Syrphus lasiophthalmus, Malformed example of ..	24
Tenebrionidæ, New genera and species of ..	200, 292
Tineina attacking dried mosses and lichens ..	200
Tribolium ferrugineum destroying ground-nuts ..	276
Trichopterous case, A quadrangular ..	250
Trombidium from Spitsbergen ..	251
Vanessa Antiopa from Weybridge ..	200
Water-Beetles of Japan, List of the ..	221

SPECIAL INDEX.

(FOR SPECIES NEW TO SCIENCE OR ADDED TO THE BRITISH LISTS, AND FOR
LARVÆ DESCRIBED, VIDE POST).

COLEOPTERA.

	PAGE		PAGE
<i>Acanthosternus</i> , Montr.	97	<i>Crepidodera pubescens</i>	270
<i>Acidota cruentata</i> , var. <i>ferruginea</i> ...	190	<i>Cryptophagus crenatus</i> , Gyll., Synonymy of	244
<i>Acrognathus mandibularis</i> at Esher ...	11	<i>punctipennis</i>	9
<i>Adelium triste</i> , Montr.	99	<i>ruficornis</i> re-described	38
<i>Adelops Wollastoni</i> , in a bees' nest ...	12	<i>Cyphon fuscicornis</i>	154
<i>Agaricophagus cephalotes</i>	159	<i>nitidulus</i>	154
<i>Agriotes sordidus</i> at Hampton and Chat- ham	12	<i>pallidiventris</i>	154
<i>Aleochara cuniculorum</i> , var.	243	<i>pallidulus</i>	155
<i>Alphitobius lateralis</i> , Boh.	202	<i>variabilis</i>	154
<i>Ancylopoma</i> , Pascoe, On the position of ...	97	<i>Doliema</i> , Pascoe	98
<i>Ancylopus melanocephalus</i>	205	<i>Donacia obscura</i>	270
<i>Aniara</i> , Lac., Synonymy of	98	<i>Dorcatoma chrysomelina</i>	270
<i>Anisotoma grandis</i>	159	<i>Elatér pomonæ</i>	268
<i>lunicollis</i>	136	<i>Endomychidæ</i> , Japanese	205, 257
<i>Anobium</i> , Ravages of	59	<i>Erotylidæ</i> , „	184
<i>Aphodius niger</i>	39	<i>Evoplus</i> , Characters of	234
<i>Apion annulipes</i>	160	<i>Exerestus</i> , F. Bates	98
<i>Schœnherri</i>	216, 269	<i>Harpalus æneus</i> , Manx var.	243
<i>Aryenis</i> , F. Bates, On the position of ...	97	<i>Helodes Bohemanni</i>	154
<i>Athous difformis</i>	118	<i>Homalium Allardi</i> , Curious localities for..	268
<i>rhombus</i>	87, 270	<i>salicis</i>	12
<i>Atomaria badia</i>	9	<i>Homalota elegantula</i>	86
<i>fumata</i>	10	<i>hepatica</i>	36, 159, 217
<i>Balaninus brassicæ</i> , On the spinning of the larva of	192	<i>orphanæ</i>	269
<i>Baridius scolopaceus</i>	117	<i>Hoplocephala baladica</i> , <i>elongata</i> , and <i>stricta</i> , Montr.	204
<i>Bembidium 4-pustulatum</i>	118	<i>Hydroporus elongatulus</i>	36
<i>Sturmii</i>	118	<i>neglectus</i> near York	12
<i>Bruchus</i> , ♂ characters of	191	<i>Iphthimus cancellatus</i> , Montr.	98
<i>rufimanus</i> swarming	217	<i>Lamprias</i> (Lebia) <i>chrysocephalus</i> , Mots... ..	59
<i>Calosoma sycophanta</i> at Plymouth ...	117	<i>Languria unicolor</i>	184
<i>Carabus auratus</i> in London	11	<i>Licinus silphoides</i> on sea-shore	119
<i>intricatus</i>	11	<i>Liosomus ovatulus</i> , var. <i>collaris</i> , Rye ...	242
<i>Cassida hemisphærica</i>	160	<i>Lycoperdina mandarinaea</i>	206
<i>Ceuthorhynchideus hepaticus</i>	88, 118	<i>Lymexylon navale</i> in Cheshire	158
<i>pumilio</i>	119	<i>Magdalinus carbonarius</i> , Food-plant of ...	39
<i>Ceuthorhynchus punctiger</i>	160	<i>Meligethes corvinus</i>	37, 159
<i>urticæ</i>	160	<i>Kunzei</i>	156
<i>Chorasmius</i> , F. Bates	135	<i>marrubii</i> (= <i>nanus</i> , Er.)	37, 157
<i>Clambus punctulum</i>	8	<i>mutabilis</i>	157
<i>Clytus erythrocephalus</i> in England ...	215, 268	<i>Millidium trisulcatum</i>	179
<i>Corticaria</i> (? <i>obscura</i> , Bris.)	10	<i>Monohammus dentator</i>	270
<i>Wollastoni</i>	269	<i>sartor</i>	270
<i>Cossonus ferrugineus</i> , Clairv. (<i>linearis</i> of Brit. coll.)	243	<i>sutor</i>	270
		<i>Myrmedonia Haworthi</i> at Southend ...	119

	PAGE
<i>Niptus hololeucus</i> swarming ...	119
<i>Notiophilus palustris</i> , Manx varr. ...	243
<i>Nyctobates orcus</i> , Pascoe ...	98
<i>Ocyopus morio</i> , small race ...	36, 60, 159
<i>Odontopus physodes</i> , <i>asperatus</i> , and <i>speciosus</i> , Pascoe ...	99
<i>Olibrus bicolor</i> not British ...	38
<i>Onosterrhus</i> , Pasc., On the position of ...	98
<i>Orchesia undulata</i> ...	270
<i>Otiorynchus blandus</i> , Sch. (<i>monticola</i> of Brit. coll.) ...	290
<i>Pæderus fuscipes</i> at Slapton ...	35
<i>Pectinicorns</i> , Japanese ...	277
<i>Pediacus dermestoides</i> ...	270
<i>Pelobius Hermannii</i> , Sound produced by ...	60
<i>Phalacrus brunnipes</i> ...	9, 216
<i>Phileurus chinensis</i> ...	289
<i>Phlæophilus</i> , Schön., re-named ...	86
<i>Phyllotreta sinuata</i> ...	269
<i>Platydemia oriticum</i> , Pasc. ...	204
<i>Platynaspis villosa</i> ...	270
<i>Platytarsus setulosus</i> ...	160
<i>Polystichus vittatus</i> ...	216, 270
<i>Ptilium cæsum</i> ...	179
<i>Ptinus subpilosus</i> ...	119
<i>Rhinonecus subfasciatus</i> jumping ...	119
<i>Salpingus æratus</i> ...	160
<i>Saprinus virescens</i> ...	118, 159
<i>Saula nigripes</i> (?) ...	206
<i>Scotæus</i> , Hope, and <i>Eucyrtus</i> , Pasc. ...	99
<i>Seydmænus pumilio</i> ...	8
<i>Sitophagus Solieri</i> , Muls. ...	99
<i>Stenus major</i> ...	12, 118
<i>morio</i> ...	118
<i>palustris</i> ...	119
<i>Strongylium viridipenne</i> , Montr. ...	99
<i>Tachinus rufipennis</i> ...	159
<i>Tenebrio Crotchii</i> , Woll. ...	98
<i>Throscus obtusus</i> ...	216, 217, 269
<i>Trachypylæus alternans</i> ...	270, 290
<i>Trachys troglodytes</i> ...	87, 270
<i>Trichosternum</i> , Woll. ...	98
<i>Trogophylæus foveolatus</i> ...	269
<i>Xylotrupes dichotomus</i> ...	289
<i>Zeugophora rufotestacea</i> ...	39

DIPTERA.

<i>Ascia quadripunctata</i> ...	251
<i>Dolichopodidæ</i> , List of British ...	71
<i>Syrphus annulatus</i> ...	252
<i>barbifrons</i> , Verrall, <i>nec</i> Fall. ...	253
<i>confusus</i> ...	251
<i>latifasciatus</i> ...	253

HEMIPTERA-HETEROPTERA.

	PAGE
<i>Acanthosoma griseum</i> , Habits of ...	13
<i>Cardiostethus testaceus</i> ...	119
<i>Ceraleptus squalidus</i> ...	192, 193
<i>Dictyonota Fieberi</i> ...	119
<i>Lasiosomus enervis</i> ...	88
<i>Neides parallelus</i> ...	193
<i>Pentatoma juniperina</i> ...	291

HEMIPTERA-HOMOPTERA.

<i>Acocephalus</i> , Revision of the British species of ...	264
<i>Cicada anglica</i> ...	88
<i>Delphacidæ</i> , Revision of British ...	238

HYMENOPTERA.

<i>Agrothereutes Hopei</i> (= <i>Cryptus pygoleucus</i> , ♀) ...	119
<i>Ceraphron Carpenteri</i> , Curtis ...	124
Chalcididous larvæ in imago of <i>Cynips</i> ...	13
<i>Formica fusca</i> abnormally copulating ...	120

LEPIDOPTERA.

<i>Acidalia emutaria</i> ...	162, 197, 248
<i>holosericeata</i> ...	198, 248
<i>rubricata</i> ...	18, 20, 218
<i>strigilata</i> ...	197
<i>trigeminata</i> ...	197, 248
<i>Acronycta alni</i> ...	111, 195
<i>auricoma</i> ...	218
<i>Agdistes Bennetti</i> ...	163
<i>Agrophila sulphuralis</i> ...	18
<i>Agrotia nemoralis</i> ...	249
<i>Agrotis lucerneæ</i> ...	43
<i>pyrophila</i> ...	43
<i>Amphysa Gerningiana</i> ...	125, 176
<i>prodromana</i> ...	125, 176
<i>Antispila Rivillei</i> bred ...	54
<i>Antithesia corticana</i> ...	126
<i>dimidiana</i> ...	127, 177
<i>fuligana</i> ...	128
<i>gentianana</i> ...	128
<i>Grevillana</i> ...	126
<i>marginana</i> ...	127, 177
<i>prælongana</i> ...	126, 177
<i>sellana</i> ...	128
<i>similana</i> ...	127
<i>sororculana</i> ...	126, 177
<i>ustulana</i> ...	128
<i>Apatura Iris</i> ...	271

	PAGE
<i>Argynnis Lathonia</i>	111, 161
<i>Argyrolepis luridana</i>	141
<i>Aspidisca</i>	17
<i>Bohemannia quadrimaculella</i>	91
<i>Brachytænia Hartmanniana</i>	126
<i>Butalis cicadella</i>	119
<i>Catoptria aspidiscana</i>	44, 66
<i>citrana</i>	20
<i>Cerastis erythrocephala</i>	249
<i>Chœrocampa Celerio</i>	272
<i>Cledeobia angustalis</i>	218
<i>Colias Edusa</i>	68
<i>Hyale</i>	162, 249
<i>Cosmopteryx Lienigiella</i>	89
<i>orichalcea</i>	90
<i>Crinodes Sommeri</i>	94, 111, 164, 198
<i>Cucullia absynthii</i>	161
<i>asteris</i>	162, 218
<i>Dasypolia Templi</i>	43, 248
<i>Depressaria carduella</i>	67
<i>depressella</i>	144
<i>Douglasella</i>	66, 113
<i>Yeatiana, Larva of</i>	113
<i>Dichelia Grotiana</i>	178
<i>Dicrorampha acuminatana</i>	28
<i>alpinana</i>	25
<i>consortana</i>	28, 67
<i>flavidorsana</i>	25
<i>plumbagana</i>	26
<i>politana</i>	25
<i>senectana</i>	27
<i>simpliciana</i>	26
<i>tanaceti</i>	26
<i>Ditula augustiorana</i>	266
<i>Eidophasia Messingiella</i>	44, 67
<i>Emmelesia unifasciata</i>	162
<i>Endopisa Germarana</i>	30, 31
<i>nebritana</i>	30
<i>nigricana</i>	30, 198
<i>pisana</i>	30
<i>plumbana</i>	29
<i>proximana</i>	30
<i>puncticostana</i>	31
<i>roseticolana</i>	30
<i>saturnana</i>	28
<i>tenebrosana</i>	30
<i>ulicana</i>	29
<i>Euchromia rufana</i>	141
<i>Eulepia cribrum</i>	139
<i>Eulia ministrana</i>	126
<i>Euperia fulvago</i>	140, 142

	xiii. PAGE
<i>Eupithecia pygmæata</i>	42, 65
<i>subciliata</i>	16, 65
<i>subumbrata</i>	163
<i>togata</i>	113, 114
<i>Eupœcilia affinitana</i>	162
<i>anthemidana</i>	18, 19
<i>atricapitana</i>	18
<i>curvistrigana</i>	249
<i>rupicolana</i>	249
<i>udana</i>	249
<i>Vectisana</i>	162
<i>Gelechia distinctella</i>	20
<i>subdecurtella</i>	91
<i>Geometra smaragdaria</i>	163
<i>Glyphipteryx cladiella</i>	89
<i>schoenicolella</i>	89, 91
<i>Heliothis dipsacea</i>	18
<i>Herminia derivalis</i>	249
<i>Hypermercia augustana</i>	125, 176
<i>cruciana</i>	125, 176
<i>Incurvaria spinosella</i>	44
<i>Laverna atra</i>	66
<i>Lithographia campoliliana</i>	267
<i>cinerana</i>	267
<i>Nisella</i>	267
<i>Penkleriana</i>	267
<i>subocellana</i>	267
<i>Lithostege griseata</i>	18
<i>Lozôtania costana</i>	214
<i>cratægana</i>	215
<i>fulvana</i>	214
<i>latiorana</i>	214
<i>musculana</i>	214
<i>piceana</i>	215
<i>Podana</i>	215
<i>pyrastrana</i>	214
<i>roborana</i>	215
<i>semialbana</i>	214
<i>Nonagria brevilinea</i>	91
<i>Orthosia ypsilon</i>	66
<i>Oxyptilus lætus</i>	18, 20
<i>Phlœodes Demarniana</i>	267
<i>immundana</i>	267
<i>Phlogophora empyrea</i>	249
<i>Phoxopteryx paludana</i>	89
<i>Pieris Daplidice</i>	111
<i>Plusia orichalcea</i>	88
<i>Polia chi</i>	290
<i>Psodos trepidaria</i>	44
<i>Pterophorus pentadactylus</i>	144
<i>Ptilophora plumigera</i>	248

	PAGE		PAGE
Pyrameis cardui	149	Tortrix viburnana	212
Retinia Buoliana	67	Triphaena subsequa... ..	56, 68
Sarothrips Revayana	125	Vanessa Antiopa	88, 105, 107, 108, 109, 110, 111, 130, 131, 137, 138, 161, 194, 195, 217, 245, 290.
Schenobius mucronellus	90	Xylina semibrunnea	163
Sericoris Doubledayana	90	Zelleria saxifragæ	139
Sesia philanthiformis	43	Zygæna achilleæ	14
Sideria achatana	129, 177	basalis	14
Sphinx convolvuli	286	confluens	14
Spilodes sticticalis	18	exulans	44
Spilonota amcenana	267	filipendulæ	14
cynobana	266	glycyrrhizæ	14
incarnatana	267	meliloti	111
roborana... ..	266	Minoides	14
rosicolana	266	orobi	14
suffusana	267	trifolii	14
trimaculana	267		
Spilosoma papyratia	162		
Stenia punctalis	218		
Sterrhia sacraria	139		
Stilbia anomala	140, 141		
Tæniocampa opima	21		
Tarsolepis remicauda	94, 111, 164, 198		
Tinea imella... ..	18, 20		
Tortrix adjunctana... ..	213		
cerasana	213		
cinnamomeana	213		
diversana	213		
dumetana	213, 249		
Forsterana... ..	213		
icterana	212		
ochreana	212		
ribeana	213		
transitana	213		

NEUROPTERA (*in the Linnean sense*).

Brachycentrus, Larva and case of	166
Chrysopa septempunctata, Duration of egg-state in	88
Oviposition of	60
Dragon-flies at Sea... ..	273
Hemerobius inconspicuous at Rannoch	83
Hemipsocus chloroticus	146
Psocus chloroticus (notes on)	77, 146
cosmopterus (note on)	76
longicornis in India	76
roseus (note on)	78
Psyllipsocus Ramburi	146
Sisyra Dalii in abundance... ..	62
Stenopsocus stigmaticus in Britain	63

INDEX TO CONTRIBUTORS.

	PAGE		PAGE
Barrett, C. G.	18, 25, 89, 124, 212, 266, 272	Briggs, T. H., M.A.	68
Barrett, J. P.	111	Brown, N. E.	160
Bates, Frederick	97, 110, 133, 149, 161, 181, 201, 233, 259	Buckler, W.	14, 15, 39, 41, 56, 64, 115, 143, 195, 246, 286, 291
Bates, H. W., F.L.S., &c.	49	Burney, Rev. H., M.A.	110
Bentley, J. E.	109	Burry, R.... ..	11
Birchall, Edwin	68	Butler, A. G., F.L.S., &c.	88, 108, 112, 198, 217, 270
Birchall, Howard	140	Carrington, T. J.	139
Birks, J.	194	Champion, G. C.	12, 86, 88, 117, 159
Bloomfield, Rev. E. N., M.A.... ..	138, 218, 249	Chapman, Thomas	193, 263
Bold, T. J.	60, 219, 245	Chapman, T. A., M.D.	13
Briggs, C. A.	290	Chappell, Joseph... ..	158, 195, 270

Colquhoun, Hugh, M.D.	66
Cox, H. Ramsay	161
Crewe, Rev. H. Harpur, M.A. ...	16, 65, 114
Crotch, G. R., M.A.	184
Dale, C. W.	21, 46, 88, 271
Doubleday, Henry	45, 138, 164, 195, 244, 268
Douglas, J. W.	4, 60, 119, 192, 193, 210
Dunning, J. W., M.A., F.L.S. ...	221
Eaton, Rev. A. E., B.A.	120
Farren, W.	110
Fletcher, J. E.	198
Food, Edith C.	161
Gorham, Rev. H. S.	12, 118, 191, 205, 257
Gray, George	111
Gray, John	11
Gregson, C. S.	176
Hagen, Dr. H. A.	78
Harwood, W. H.	137, 272
Hay, A. J.	193
Hellins, Rev. J., M.A.	13, 42, 92, 113
Hewitson, W. C., F.L.S.	83, 146, 161, 232
Higgins, E. T., M.R.C.S.	109
Hislop, Robert	39
Hodgkinson, J. B.	44, 66, 67, 113, 140, 162
Hudd, A. E.	161
Hutchinson, H.	12
Janson, E. W.	184
Jenner, J. H. A.	249
Jones, A. H.	109, 137, 197
Jordan, R. C. R., M.D.	273
Latchmore, Frank	107
Lawson, Robert	217
Lewis, George	109, 119, 289
Longstaff, G. B., M.A.	139
McLachlan, R., F.L.S.	1, 62, 63, 74, 88, 99, 166, 168, 225, 273
Madden, G. C. B.	139
Marsh, Rev. T. H., M.A.	108
Marshall, Rev. T. A., M.A., F.L.S. ...	119, 123, 240
Marshall, W. C.	159
Matthews, Rev. A., M.A.	178
Meldola, Raphael	68, 109, 163
Melville, J. Cosmo, B.A., F.L.S. ...	263

Morley, T.	268
Morris, Rev. F. O., M.A.	110
Müller, Albert, F.L.S.	13, 45, 60, 88, 95, 120, 144, 192, 218
Nash, Rev. A., M.A.	119
Norman, George	68, 108, 141, 168, 199, 250
Pasley, L. M. S.	138
Piffard, Bernard	69
Porritt, G. T., F.L.S.	17, 21, 66, 92, 110, 197, 248, 272
Prest, W.	245
Reed, Edwyn C.	207
Riley, C. V., State Ent. Missouri ...	195
Ritsemā, C.	94, 121, 164
Rowe, J. Brooking, F.L.S.	117
Rye, E. C.	5, 36, 59, 86, 110, 131, 135, 136, 156, 190, 215, 242, 243, 268, 269
Sang, John	111, 138
Scott, John	210, 238, 264, 292
Selys-Longchamps, Baron E. de ...	145
Sharp, David, M.B.	131, 137, 152, 154, 244, 268, 290
Simpkinson, Rev. J. K., M.A.	217
Snowden, Arthur H.	111
Stainton, H. T., F.R.S., &c.	17, 54, 105, 107, 113
Staudinger, O., Ph.D.	290
Thompson, W.	67
Traill, J. W. H., M.A.	42
Tylden, Rev. W., M.A.	290
Ulyett, H.	111
Vaughan, Howard	88
Verrall, G. H.	71, 251, 281
Walker, J. J.	162, 216, 269
Ward, Christopher, F.L.S.	2, 147, 209
Waterhouse, C. O.	31, 53, 184, 277
Waterhouse, E. A.	119
Webb, Sydney	110, 144
White, F. Buchanan, M.D.	130, 139, 149, 220
Wilbey, J. E.	111
Williams, H.	65
Wollaston, T. V., M.A., F.L.S.	11, 33, 117, 243, 278
Wood, Rev. J. G., M.A., F.L.S.	108

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED IN THIS VOLUME.

COLEOPTERA.

GENERA.

	PAGE
AMAROTYPUS, <i>H. W. Bates</i>	50
APHANOCEPHALUS, <i>Wollaston</i>	278
CONIOPODA, <i>Gorham</i>	205
CYLOMA, <i>Sharp</i>	152
MELOETYPHUS, <i>C. O. Waterhouse</i>	31
MESOTRETIS, <i>F. Bates</i>	151
METABOLOCERUS, ,,	259
METULOSONIA, ,,	261
PANAMOMUS, ,,	207
RHABDUCHUS, <i>Gorham</i>	257
SPILOSCAPHA, <i>F. Bates</i>	202
STENOSCAPHA, ,,	237
ULOMIMIMUS, ,,	201

SPECIES.

<i>Ægus subnitidus</i> , <i>C. O. Waterhouse, Japan</i>	277
<i>Alegoria parallela</i> , <i>F. Bates, Brazil</i>	183
<i>quadraticollis</i> , ,, <i>Venezuela</i>	182
<i>Sallei</i> , ,, <i>Mexico</i>	181
<i>Allophasia Marseuli</i> , ,, (<i>no locality given</i>)	237
<i>Amarotypus Edwardsi</i> , <i>H. W. Bates, N. Zealand</i>	51
<i>Anthicus scoticus</i> , <i>Rye, Scotland</i>	10
<i>Aphanocephalus hemispæhricus</i> , <i>Wollaston, Japan</i>	281
<i>Aryenis Haagi</i> , <i>F. Bates, Peru</i>	135
<i>Aulacochilus japonicus</i> , <i>Crotch, Japan</i>	189
<i>Cantharis</i> (?) <i>Philippii</i> , <i>Reed, N. Chile</i>	208
<i>Cicindela ditissima</i> , <i>H. W. Bates, H. Kong</i>	49
<i>velata</i> , ,, <i>N. Borneo</i>	50
<i>Coniopoda orientalis</i> , <i>Gorham, Japan</i>	205
<i>Ctenostoma eburatum</i> , <i>H. W. Bates, S. Brazil</i>	49
<i>Cyloma Lawsonus</i> , <i>Sharp, N. Zealand</i>	152
<i>Cyphon punctipennis</i> , ,, <i>Scotland</i>	155
<i>Cyrtotriplax Lewisi</i> , <i>Crotch, Japan</i>	189
<i>Dacne japonica</i> , ,, ,,	188
<i>picta</i> , ,, ,,	188
<i>Damaster Lewisi</i> , <i>Rye, Japan</i>	131
<i>Epiphysa ciliata</i> , <i>F. Bates, Angola</i>	134
<i>ovata</i> , ,, <i>Benguela</i>	133
<i>Episcapha Fortunii</i> , <i>Crotch, Japan and China</i>	188

	PAGE
<i>Evoplus Leontii</i> , <i>F. Bates, Colombia</i>	234
<i>Figulus binodulus</i> , <i>C. O. Waterhouse, Japan</i>	277
<i>punctatus</i> , ,, ,,	278
<i>Gyriosomus affinis</i> , <i>Reed, N. Chile</i>	208
<i>Kingi</i> , ,, ,,	207
<i>Hoplocephala amazonica</i> , <i>F. Bates, Santarem</i>	203
<i>castanea</i> , <i>F. Bates, N. Granada</i>	204
<i>lateralis</i> , <i>F. Bates, Colombia</i>	204
<i>Ino quadrinotata</i> , <i>Gorham, Japan</i>	258
<i>Languria atriceps</i> , <i>Crotch, Japan</i>	185
<i>convexicollis</i> , <i>C. O. Waterhouse, Japan</i>	187
<i>Jansoni</i> , <i>Crotch, Japan</i>	185
<i>Lewisi</i> , ,, ,,	184
<i>nigripes</i> , ,, ,, <i>and China</i>	184
<i>nigritarsis</i> , <i>C. O. Waterhouse, Japan</i>	186
<i>pectoralis</i> , ,, ,,	187
<i>prætermisssa</i> , <i>Janson, Japan</i>	186
<i>præusta</i> , <i>Crotch, Japan & China</i>	185
<i>ruficeps</i> , ,, ,,	185
<i>Liodema connexum</i> , <i>F. Bates, Colombia</i>	236
<i>fulvum</i> , ,, <i>Cumana</i>	236
<i>Horni</i> , ,, <i>Santarem</i>	236
<i>Kirschi</i> , ,, <i>Bogota</i>	235
<i>obydense</i> , ,, <i>Obydos</i>	235
<i>serricorne</i> , ,, <i>Cayenne</i>	236
<i>Listroderes superbus</i> , <i>Reed, S. Chile</i>	209
<i>Lycoperdina dux</i> , <i>Gorham, Japan</i>	205
<i>Meloëttyphus fuscatus</i> , <i>C. O. Waterhouse, E. Pebas</i>	32
<i>Mesotretis ferruginea</i> , <i>F. Bates, Australia</i>	151
<i>Metabolocerus clypeatus</i> and var. ? <i>brevicornis</i> , <i>F. Bates, Cumana</i>	260
<i>Fryi</i> , <i>F. Bates, Colombia</i>	260
<i>pilosus</i> , ,, <i>N. Granada</i>	260
<i>Metulosonia egaensis</i> , ,, <i>Ega</i>	262
<i>Horni</i> , ,, <i>Panama</i>	262
<i>Mycetina amabilis</i> , <i>Gorham, Japan</i>	206
<i>ancoriger</i> , ,, ,,	206
<i>Nacerdes Saundersi</i> , <i>Reed, N. Chile</i>	208
<i>Nebria chinensis</i> , <i>H. W. Bates, China</i>	52
<i>mandibularis</i> , ,, ? <i>Persia</i>	51

PAGE

<i>Neolucanus marginatus</i> , <i>C. O. Waterhouse</i> , <i>N. India</i>	53
<i>Panamomus Lewisi</i> , <i>Gorham, Japan</i>	207
<i>Peltoides capensis</i> , <i>F. Bates, Natal</i>	262
<i>Phalacrus Brisouti</i> , <i>Rye, England</i>	8
<i>Phillydrus suturalis</i> , <i>Sharp, Britain</i>	153
<i>Polpogenia rimosa</i> , <i>F. Bates, Niger</i>	149
<i>Rhabduchus denticornis</i> , <i>Gorham, Japan</i>	257
<i>Scopæus Ryei</i> , <i>Wollaston, England</i>	34
<i>Seydmænus præteritus</i> , <i>Rye, England</i>	6
<i>Spiloscapa crassicornis</i> , <i>F. Bates, Sydney</i>	203
<i>Stenoscapa tibialis</i> , " <i>Ega</i>	237
<i>Stenotarsus nigriclavus</i> , <i>Gorham, Japan</i>	207
<i>Stenocerus Vidali</i> , <i>Reed, S. Chile</i>	209
<i>Trichopteryx carbonaria</i> , <i>Matthews, Engl.</i>	179
<i>Letitiæ</i> , <i>Matthews, Belgium</i>	180
<i>Triplax japonica</i> , <i>Crotch, Japan</i>	189
<i>Ulomimimus indicus</i> , <i>F. Bates, E. India</i>	202

DIPTERA.

<i>Melanostoma 4-maculatum</i> , <i>Verrall</i> , <i>Scotland</i>	281
<i>Syrphus compositarum</i> , <i>flavifrons</i> , <i>punctulatus</i> , " " "	254 256 254

HEMIPTERA-HOMOPTERA.

<i>Athysanus canescens</i> ,* <i>Douglas & Scott</i> , <i>England</i>	210
<i>cognatus</i> , " <i>Britain</i>	211
<i>Liburnia æmulator</i> , <i>Scott, England</i>	238
<i>consanguinea</i> , " "	239

HYMENOPTERA.

GENUS.

<i>PIAGETIA</i> , <i>C. Ritsema</i>	121
SPECIES	
<i>Anomalon fasciatum</i> , <i>Marshall, England</i>	240
<i>Aphidius gregarius</i> , " "	123
<i>Mesostenus maurus</i> , " "	241
<i>Piagetia Ritsemæ</i> , <i>C. Ritsema, Java</i>	122
<i>Woerdeni</i> , " <i>Congo</i>	121

LEPIDOPTERA.

PAGE

<i>Acraea Manandaza</i> , <i>Ward, Madagascar</i>	147
<i>Maransetra</i> , " "	2
<i>Masamba</i> , " "	3
<i>Masonala</i> , " "	3
<i>Antithesia Staintoniana</i> , <i>Barrett, Scotland</i>	127
<i>Charaxes Analava</i> , <i>Ward, Madagascar</i>	3
<i>Andara</i> , " "	209
<i>Andriba</i> , " "	210
<i>Debis Deliades</i> , <i>Hewitson, Darjeling</i>	84
<i>Dolopes</i> , " "	85
<i>Diadema Chapmani</i> , " <i>Calabar</i>	233
<i>Ruhama</i> , " <i>Angola</i>	84
<i>Usambara</i> , <i>Ward, Ribé</i>	148
<i>Dicrorhampha herbosana</i> , <i>Barrett, Engl.</i>	27
<i>Euplœa Lorraini</i> , <i>Chapman, Java</i>	263
<i>Eurytela Narinda</i> , <i>Ward, Madagascar</i>	148
<i>Heliconia Choarina</i> , <i>Hewitson, Ecuador</i>	83
<i>Iolaus Inores</i> , <i>Hewitson</i> (loc. unknown)	85
<i>Lasiommata Lyrnessa</i> , <i>Hewitson</i> , <i>N. Caledonia</i>	85
<i>Lycæna Arthurus</i> , <i>Melville, Chamounix</i>	263, 290
<i>Mycalesis Antahala</i> , <i>Ward, Madagascar</i>	148
<i>Olyras</i> (script. "Clyras") <i>translucens</i> , <i>Hewitson, Ecuador</i>	83
<i>Papilio Illyris</i> , <i>Hewitson, Gold Coast</i>	232
<i>Kirbyi</i> , " <i>Lagos</i>	146

NEUROPTERA.

GENERA.

<i>AMPHIPSOCUS</i> , <i>McLachlan</i>	76
<i>HEMIPSOCUS</i> , <i>de Selys</i>	146
<i>PSYLLIPSOCUS</i> , "	145

SPECIES.

<i>Amphipsocus pilosus</i> , <i>McLachlan, N. India</i>	77
<i>Cacilius pictipennis</i> , " <i>Ceylon</i>	76
<i>Psilocnemis alatipes</i> , " <i>Madagascar</i>	1
<i>Psocus clarus</i> , " <i>Ceylon</i>	75
<i>malayanus</i> , " <i>Sula</i>	75
<i>5-punctatus</i> , " <i>Ceylon</i>	75

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

COLEOPTERA.		PAGE
(?) <i>Agapanthia micans</i> , <i>Payk.</i>	190	
<i>Anisotoma brunnea</i> , <i>Stm.</i>	135	
<i>Anthicus scoticus</i> , <i>Rye</i>	10	
<i>Bagous brevis</i> , <i>Schön.</i>	242	
<i>Ilybius ænescens</i> , <i>Thoms.</i>	36	
<i>Leptusa testacea</i> , <i>Ch. Brisout</i>	5	
<i>Liosomus oblongulus</i> , <i>Boh.</i>	242	
<i>Lithocharis picea</i> , <i>Ktz.</i>	156	
<i>Meligethes ochropus</i> , <i>Stm.</i>	156	
<i>Nanophyes gracilis</i> , <i>Redt.</i>	157	
<i>Olibrus particeps</i> , <i>Muls.</i>	38	
<i>Otiorhynchus</i> (?) <i>lugdunensis</i> , <i>Boh.</i>	269	
<i>Phalacrus Brisouti</i> , <i>Rye</i>	8	
Humberti, <i>Tournier, M.S.</i>		159
<i>Philhydrus suturalis</i> , <i>Shp.</i>	153	
<i>Ptinus testaceus</i> , <i>Ol.</i>	268	
<i>Scopæus Ryei</i> , <i>Wollast.</i>	34	
<i>Scydmaenus præteritus</i> , <i>Rye</i>	7, 159	
<i>Scymnus arcuatus</i> , <i>Rossi.</i>	117	
<i>Smicronyx Reichei</i> , <i>Gyll.</i>	11	
<i>Thyamis distinguenda</i> , <i>Rye</i>	157	
<i>Tribolium confusum</i> , <i>Dunal</i>	268	
<i>Trichopteryx carbonaria</i> , <i>Matth.</i>	179	
DIPTERA.		
<i>Chilosia olivacea</i> , <i>Zett.</i>	285	
<i>Chrysochlamys ruficornis</i>	285	
<i>Chrysotus cupreus</i> , <i>Macq.</i>	73	
<i>Diaphorus Winthemi</i> , <i>Meig.</i>	73	
<i>Dolichopus</i> ? <i>agilis</i> , <i>Meig.</i>	72	
<i>lepidus</i> , <i>Stæg.</i>	71	
<i>signatus</i> , <i>Meig.</i>	71	
<i>Wahlbergi</i> , <i>Zett.</i>	71	
<i>Gymnopternus ærosus</i> , <i>Fall.</i> (var. <i>Dahlbomi</i> , <i>Zett.</i>)	72	
<i>angustifrons</i> , <i>Stæg.</i>	72	
<i>assimilis</i> , <i>Stæg.</i>	72	
<i>atrovirens</i> , <i>Loew</i>	72	
<i>chærophylli</i> , <i>Meig.</i>	72	
<i>metallicus</i> , <i>Stann.</i>	72	
<i>principalis</i> , <i>Loew</i>	72	
<i>Medeterus tristis</i> , <i>Zett.</i>	74	
<i>Melanostoma 4-maculatum</i> , <i>Verrall</i>	281	
<i>Paragus albifrons</i> , <i>Fall.</i>	286	
<i>Platychirus latimanus</i> , <i>Wahlb.</i>	283	
<i>Porphyrops pectinatus</i> , <i>Loew</i>	73	
<i>Psilopus latus</i> , <i>Meig.</i>	74	
		PAGE
<i>Syrphus compositarum</i> , <i>Verrall</i>	254	
<i>flavifrons</i> , <i>Verrall</i>	256	
<i>obscurus</i> , <i>Zett.</i> (renamed <i>nigricornis</i>)	251	
<i>punctulatus</i> , <i>Verrall</i>	254	
<i>vittiger</i> , <i>Zett.</i>	253	
<i>Teuchophorus calcaratus</i> , <i>Macq.</i>	73	
<i>Xylota confinis</i> , <i>Zett.</i>	285	
HEMIPTERA-HETEROPTERA.		
GENUS.		
<i>Emblethis</i> , <i>Fieb.</i>	4	
SPECIES.		
<i>Emblethis verbasci</i> , <i>Fab.</i>	4, 193	
HOMOPTERA.		
<i>Acocephalus interruptus</i> , <i>Fieb.</i>	264	
<i>polystolus</i> , <i>Fieb.</i>	265	
<i>Athysanus canescens</i> , <i>D. & S.</i>	210	
<i>cognatus</i> , <i>D. & S.</i>	211	
<i>Liburnia æmulator</i> , <i>Scott</i>	238	
<i>consanguinea</i> , <i>Scott</i>	239	
<i>similis</i> , <i>Kirschb.</i>	240	
HYMENOPTERA.		
<i>Anomalon fasciatum</i> , <i>Marshall</i>	123	
<i>Aphidius gregarius</i> ,	240	
<i>Mesostenus maurus</i> ,	241	
LEPIDOPTERA.		
GENUS.		
<i>Syntomis</i>	160	
SPECIES.		
<i>Antithesia Staintoniana</i> , <i>Barrett</i>	127	
(?) <i>Apatura Ilia</i>	217, 244, 270	
<i>Crambus verellus</i> , <i>Zk.</i>	88, 161	
<i>Dichelia gnomania</i> , <i>Linn.</i>	129	
<i>Dicrorhampha herbosana</i> , <i>Barrett</i>	27	
<i>Halonota grandævana</i> , <i>Zeller</i>	272	
<i>Syntomis Phegea</i> , <i>L.</i>	160, 195	
NEUROPTERA.		
<i>Stenopocus stigmaticus</i> , <i>Imhoff. & L.</i> ...	63	

LARVÆ OF BRITISH SPECIES DESCRIBED IN THIS VOLUME.

LEPIDOPTERA.

	PAGE
<i>Acidalia degeneraria</i> , <i>W. Buckler</i> - - - - -	115
„ <i>incanaria</i> , „ - - - - -	246
<i>Acronycta alni</i> , <i>J. Chappell</i> - - - - -	195
<i>Agrotis cursoria</i> , <i>W. Buckler</i> - - - - -	14
<i>Amphysa Gerningana</i> , <i>C. S. Gregson</i> - - - - -	176
<i>Anchocelis litura</i> , <i>W. Buckler</i> - - - - -	39
<i>Anisopteryx æscularia</i> , <i>G. T. Porritt</i> - - - - -	272
<i>Brephos notha</i> , <i>W. Buckler</i> - - - - -	41
<i>Carsia imbutata</i> , <i>J. Hellins</i> - - - - -	92
<i>Celæna Haworthi</i> , <i>W. Buckler</i> - - - - -	195
<i>Cloantha solidaginis</i> , <i>G. T. Porritt</i> - - - - -	92
<i>Dianthœcia cæsia</i> , <i>W. Buckler</i> - - - - -	64
<i>Ephestia artemisiella</i> , „ - - - - -	144
<i>Eubolia lineolata</i> , <i>G. T. Porritt</i> - - - - -	197
<i>Eupithecia pygmæata</i> , <i>H. Harpur-Crewe</i> - - - - -	65
„ <i>subciliata</i> , „ - - - - -	16
„ <i>togata</i> , „ - - - - -	114
<i>Nola strigula</i> , <i>W. Buckler</i> - - - - -	15
<i>Polia chi</i> , „ - - - - -	290
<i>Sphinx convolvuli</i> , „ - - - - -	288
<i>Tephrosia consonaria</i> , <i>G. T. Porritt</i> - - - - -	17
<i>Triphæna subsequa</i> , <i>W. Buckler</i> - - - - -	56

NEUROPTERA.

<i>Chrysopa septempunctata</i> , <i>A. Müller</i> - - - - -	62
---	----

REVIEWS.

“The Micrographic Dictionary.” - - - - -	22
“Die Pflanzen Feinde aus der Classe der Insecten.”— <i>J. H. Kaltenbach</i> - - -	22
“Fourth Annual Report of the Noxious, Beneficial, and other Insects of the State of Missouri.”— <i>C. V. Riley</i> - - - - -	47
“Transactions of the Norfolk and Norwich Naturalists’ Society.” - - -	47
“The British species of <i>Crambus</i> .”— <i>F. Buchanan White</i> - - - - -	47
“A Catalogue of British Hymenoptera” (Part 2).— <i>T. A. Marshall</i> - - -	221

OBITUARY.

<i>George Robert Gray</i> - - - - -	23
<i>Coleman T. Robinson</i> - - - - -	96
<i>Constantin Wesmæel</i> - - - - -	167
<i>Robert Smith Edleston</i> - - - - -	167
<i>Thomas Parry</i> - - - - -	292

WOOD - CUTS.

Psiloenemis alatipes, Leg of	-	-	-	-	-	-	-	1
Amphipsocus (g. n.), Wing of	-	-	-	-	-	-	-	77
Vanessa Antiopa	-	-	-	-	-	-	-	105
Piagetia Ritsemæ and details of P. Woerdeni	-	-	-	-	-	-	-	122
Psyllipsocus (g. n.), Fore-wing of	-	-	-	-	-	-	-	145
Hemipsocus (g. n.), Fore-wing of	-	-	-	-	-	-	-	145

ERRATA.

(N.B.—Many of these are Authors' corrections).

Page	1,	line 20 from top,	for "blackish" read "whitish."
"	83,	" 15 " " "	" CLYRAS " " OLYRAS."
"	97,	" 12 " " "	" carena " " carina."
"	"	" 17 " " "	" larger " " longer."
"	"	" 25 " " "	" as " " of the metasternum."
"	127,	" 14 " " "	" Swale " " Iwade."
"	133,	" 7 " bottom,	for "apical" " posterior."
"	134,	" 4 " top,	for "anteriorly" " posteriorly."
"	136,	" 9 " " "	dele "of."
"	150,	" 8 " " "	for "in" read "on."
"	"	" 16 " " "	" elytra " " elytron."
"	"	" 25 " " "	" contracted " " compacted."
"	"	" 35 " " "	" near the metasternum " read "behind."
"	151,	" 11 " bottom,	for "species" read "genus."
"	177,	" 8 " " "	" Risley Moss " " Whitley Reed."
"	205,	" 18 " " "	" et tuberculis " " e tuberculis."
"	"	" 17 " " "	" corum " " eorum."
"	211,	" 16 " top,	" fulcra " " coxæ."
"	240,	" 6 " " "	" Liburnia " " Delphæx."
"	259,	" 13 " " "	" with " " into."
"	261,	lines 19 and 20 from bottom,	dele from "by" to "behind," inclusively.
"	262,	line 12 from top,	add "broadly" before last word.
"	"	" 30 " " "	for "processes" read "process."
"	"	" 31 " " "	" plain " " plane."
"	271,	" 12 " bottom,	for "Scoparia" read "Sericoris."
"	"	" " " " " " "	" S. " " Scoparia."

Entomologist's Monthly Magazine

VOLUME IX.

DESCRIPTION OF A REMARKABLE NEW SPECIES OF *AGRIONINA*
FROM MADAGASCAR.

BY R. M' LACHLAN, F. L. S.

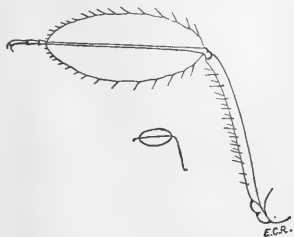
PSILOCNEMIS ALATIPES, n. s.

Caput suprà nigrum, lineâ albidâ transversâ utrinque signatum; frons albidus. Thorax albidus, utrinque lineâ nigrâ signatus. Pedes albi; genubus tarsisque anticis nigricantibus; tibiis intermediis posticisque valde explanato-dilatatis, elongato-ovalibus. Abdomen saturate brunneum; segmentis (basalibus duobus exceptis) nigro-terminatis; segmento 1° albido, dimidio basali nigro; 2° albido, infrâ lineisque latis duabus lateralibus, postice angulatim sursum convergentibus, nigris; 3° basi summo lineâ albidâ tenui transversâ, fere geminatâ, signato. Alæ vitreæ, ad costam lerissime flavido-tinctæ, sub-acute; pterostigmate nigro (♂).

Head black above, posteriorly with a narrow transverse whitish line on each side; front portion of the vertex and the front and mouth organs (excepting the tips of the mandibles) blackish; or the whole head might be described as whitish, with a broad transverse black band above: *antennæ* with the second and third joints of nearly equal lengths, but the third much thinner, two basal joints whitish, third joint blackish (rest broken).

Prothorax whitish, black at the sides; the posterior lobe very large, only slightly raised, transversely oblong, the angles slightly rounded.

Thorax whitish; sides broadly black at the base of the intermediate legs; a vestige of a black humeral line indicated only at its lower end, and a broad, black complete line from the base of the posterior wings; finally the under-side is almost entirely black between the coxæ. *Legs* entirely white, excepting the knees and tarsi of the anterior pair, and the terminal joint of the tarsi of the others, which are blackish; spines long and black; the tibiæ of the intermediate and posterior pairs are enormously dilated, elongate-oval, resembling



the septum remaining after the dispersal of the seeds of some cruciferous plants (e. g., *Lepidium sativum*).

Abdomen with the basal segment whitish, blackish at its base; second segment whitish, black beneath, and with a black angulated line on each side, leaving a sub-quadrate, spade-shaped white space above, with a peduncle not extending to the posterior suture; genital organs black: third to sixth segments of nearly equal lengths, the third much more than twice the length of the second, each dark brown and blackish at its posterior end, third segment narrowly whitish above at its anterior end (the rest wanting).

Wings with a slight yellowish tinge along the costal margin, narrow, the apex sub-acute; pterostigma rhomboidal, black; sixteen post-cubital nervules in the anterior wings.

Length of anterior wing, 21 millimètres; posterior wing, 20 mm. Expanse of wings, 43 mm. Length of body to end of sixth segment of abdomen, 33 mm.

I owe the possession of this remarkable insect to the liberality of C. Ward, Esq., who received it from his collector in Madagascar, Mr. Crossley, by whom it was taken in the interior of that island. According to the comparative lengths of the second and third joints of the antennæ, and of the second and third segments of the abdomen, the insect falls into the sub-genus *Psilocnemis* of De Selys; but I believe he is now of opinion that the separation of *Psilocnemis* from *Platynemis* will eventually be found to have been based upon insufficient characters. The dilatation of the two posterior pairs of tibiæ is enormous, much more than twice as much as is seen in *Platynemis latipes* of the south of Europe, which was hitherto supposed to possess this peculiarity in the most intensified form, and too exaggerated to be compared with that of the British *Platyc. pennipes*. The species of *Psilocnemis* were hitherto thought to be peculiar to Asia and the Asiatic islands. The female of *P. alatipes* will probably be found to want the dilatation of the tibiæ.

Lewisham: May, 1872.

DESCRIPTIONS OF NEW SPECIES OF DIURNAL LEPIDOPTERA FROM MADAGASCAR.

BY CHRISTOPHER WARD, F.L.S.

ACRÆA MARANSETRA, n. s.

♂. *Upper-side*: fore-wing transparent, glossy, with the base rufous, anterior margin shaded with brown; hind-wing red, a detached spot of black near the base, below the costal nervure; under this, and bordering on the inner margin, a cluster of confluent spots, beyond, a band of five spots, curving inwards to the anterior margin, all black; the outer margin edged with brown, with a band of seven detached semi-circular spots, black, and tipped outwardly with red.

Under-side: as above, but with hind-wing much paler, and the spots more clearly defined.

♀ resembles the male.

Expanse, ♂, $1\frac{8}{10}$; ♀, 2 inches. Taken in *copulá*.

ACRÆA MASAMBA, *n. s.*

Upper-side: fore-wing transparent, with margins and nervures clouded with brown, base rufous, a small brown spot within the cell; hind-wing red, with hinder margin brown and inner margin yellowish; a band of nine black spots, commencing near the base of anterior margin, and curving round to the centre of inner margin; within this band, near the base, a cluster of five black spots.

Under-side: as above, but hind-wing grey, with the base red.

Expanse, 2 inches.

ACRÆA MASONALA, *n. s.*

Upper-side: fore-wing transparent, glossy, broadly suffused with rosy pink, nervures and anterior margin brown; hind-wing red, continued nearly to the outer margin, which is transparent and glossy; following the outer margin, where the red ends, a circle of five clear black spots, the centre one the smallest, and placed rather nearest the margin.

Under-side: as above, but lighter red mingled with grey, and with five small black spots at the base.

Expanse, $2\frac{1}{4}$ inches.

CHARAXES ANALAVA, *n. s.*

Upper-side: both wings light yellowish-green; fore-wing, beyond the middle, black, containing a vertical curved band of five light green spots, the second and fifth from the top very small, a similar spot touching the end of the cell; hind-wing, outer margin broadly bordered with black, narrowing and shading into the green at the anal angle; three tails, green, the centre the smallest; fore-wing falcate, and both wings dentated.

Under-side: beautifully marbled with green, black, and silver; fore-wing green, lightest at the outer margin; the cell crossed midway by a narrow band of silver, containing a black spot, and near the extremity by a similar broader band, edged with black; beyond this, a narrow curved line of black, edged outwardly with silver; hind-wing green, with a vertical band midway, curving inwards, of lighter green and silver, edged with black; beyond the middle, following the outline of the wing from the anterior margin to the anal angle, a series of ocelli, the upper one the most distinct, silvery grey, edged with black and light green, the lower ones light green, suffused with silvery-grey. Antennæ green.

Expanse, $3\frac{1}{4}$ inches.

Halifax: April, 1872.

BRITISH HEMIPTERA—AN ADDITIONAL GENUS AND SPECIES.

BY J. W. DOUGLAS.

Section 5.—LYGÆINA.

Family 1.—RHYPAROCHROMIDÆ.

Genus *EMBLETHIS*, Fieb.

Long-oval, broad.

Head short, pentagonal, deeply inserted in the thorax. *Antennæ* short, slender; 1st joint short, stout; 2nd more than twice the length of 1st; 3rd shorter than 2nd; 4th rather shorter than 3rd, thin fusiform. *Eyes* small, not projecting beyond the anterior angles of the pronotum. *Rostrum* reaching to the middle of the metasternum; 1st joint as long as the head, 2nd reaching to the anterior coxæ.

Thorax: *pronotum* short, trapezoidal, or rather sub-quadrate, the sides anteriorly rounded off to the angles, flatly produced throughout; front emarginate; disc convex, less so on the posterior third; posterior margin nearly straight. *Scutellum* large, long-triangular. *Elytra* broad; *clavus* narrow; *membrane* with five nerves, the two inner ones sinuate at the base. *Legs*: *thighs*, 1st pair with six to eight small spines on the under-side; *tarsi* long, 1st joint longer than the 2nd and 3rd together, on the 3rd pair twice as long.

Among the British genera, this comes nearest to *Calyptonotus*, D. and S.

Species 1.—*EMBLETHIS VERBASCI*.

Lygæus verbasci, Fab., S. R., 235, 161 (1803).

„ *pilifrons*, Zett., k. Vet. Acad. Handl. 71, 21 (1819).

Pachymerus marginepunctatus, H.-Schf., Panz. F. G. 118, 7 (*nec* Wolff).

Emblethis platychilus, Fieb., Europ. Hem. 197, 1 (1861).

„ *verbasci*, Stål, Hem. Fab., i, 79, 1 (1868).

Dull, upper surface dingy ochreous, obscured by close, fine, black punctures; *face*, *antennæ*, and *legs* setose; *pronotum*, sides broadly foliaceous, naked.

Head: middle lobe prominent, its sides anteriorly set with short, stout, projecting black hairs; there are also one or two similar hairs immediately before each eye. *Antennæ* piceous, apex of 1st joint ochreous, beset throughout with short, projecting hairs, strong on the 1st and 2nd joints. *Eyes* black. *Rostrum* dark piceous.

Thorax: *pronotum*, the foliaceous sides broad, naked, ochreous, both on the upper and under-sides with large black punctures, sometimes confluent; disc covered

with fine black punctures, anteriorly, in places, a little distant, giving the surface a marbled appearance. *Scutellum* punctured like the pronotum, at the basal angles a black spot divided obliquely by an ochreous line. *Elytra*: *clavus* and *corium* with black punctures, less close and regular than on the pronotum and scutellum; *corium*, nerves pale, with a row of the dark punctures along each, anterior margin rather wide, slightly recurved, ochreous, with large, distant, black punctures sometimes confluent; *membrane* smoky, crenulate, nerves darker, with very narrow pale margins; in the interstices, a row of small, pale spots, and in the second space at the base, a large, black spot. *Sternum* black, posterior margin of each segment, the sides of the 1st, and a large spot on the coxal sheaths, whitish. *Legs* ochreous; *coxæ* black; *thighs* all with brown spots, somewhat in rows, or with transverse streaks, closer towards the base, which is black; 1st pair beneath, on the inner edge,* with six or seven small, short, black spines, of which the first three are a trifle the largest; 2nd and 3rd pairs, especially on the upper and inner sides, with very short, scarcely projecting spines; *tibiæ* with distant, short, projecting black spines, the 1st pair on the under-side only; at the base, an indistinct black ring, apex infuscated; *tarsi* infuscated.

Abdomen above, black, *connexivum* pale, with sub-triangular, black spots at the base and margin of the segments; under-side piceous.

Length, 3 lines nearly.

Described from a ♀ found at Deal, in March last, among the roots of dwarf willow, by Mr. J. G. Marsh, and kindly sent for inspection.

The antennæ, rostrum and legs are darker than described by Fieber, but these differences do not seem to me to be material.

The genus *Emblethis* contains only one other species, *Cimex arenarius*, Lin., which may also be expected to occur in Britain, but it appears to be much rarer on the continent than *verbasci*. It is very like it generally, but may be distinguished by the side margins of the pronotum being beset with spinose hairs.

Lee: 4th May, 1872.

ADDITIONS, &c., TO THE LIST OF BRITISH COLEOPTERA, WITH DESCRIPTIONS OF THREE NEW SPECIES.

BY E. C. RYE.

LEPTUSA TESTACEA, Ch. Brisout, in Gren. Cat. et Mat., &c., 1863, p. 16.

A single example of this interesting species, originally recorded from Toulon, was taken by Mr. G. C. Champion on 6th June, 1870, out of sea-weed on the sandy shore at Whitstable, Kent, and, when alive, according to its captor, had much the *facies* of *Phytosus nigri-ventris*. It has been named for me by its describer.

* In the generic characters, Fieber says the spines are on the "outer" edge; but, in describing the species, he puts, correctly, on the "inner" edge. —J. W. D.

It is linear, flattened, testaceous, with dark abdomen, very short elytra, and long antennæ, of rather dull appearance, and about $1\frac{1}{2}$ lin. in length.

SCYDMÆNUS PRÆTERITUS, *sp. n.*

? *Sparshallii*, Schaum, Redt., ?? Fairm.; *nec* Denny, Thoms.

Fusco-piceus, nitidus, antennis pedibusque testaceis, illis ad apicem fere gradatim incrassatis, articulis 8—10 transversis; prothorace elongato-quadrato, lateribus antice rotundatis, pube fulvâ tenuiori sub-erectâ sparsim vestito, disco lævissimo, basi impressione transversâ, in foveolam elongatam oblique anticeque ad marginem ductam utrinque desinentem, minus fortiter impresso, plicâ medianâ nullâ; elytris ovato-elongatis, minus convexis, lateribus a tertiâ parte basali ad apicem gradatim rotundato-contractis, basi singulatim profunde foveolatis, plicâque humerali instructis, obsoletissime punctulatis, pubescentiâ fulvâ, certo sitâ fere striatim dispositâ, minus dense vestitis.

Long. corp. $\frac{1}{2}$ — $\frac{5}{8}$ lin. (Anglic.).

Allied to *S. Sparshallii*, Denny, from which it differs in its darker colour; longer and somewhat less convex shape; longer, narrower, and apically more gradually contracted elytra, the pubescence of which is in certain lights almost disposed in striæ, and the punctuation of which is much less evident; rather longer thorax, which exhibits very thin and scant pubescence, and has the transverse basal impression fainter and with only *one* fovea on each side at the margin; proportionally smaller eyes, and antennæ stouter at the apex; the three apical joints being considerably and the 8th (and in a less degree the 7th) evidently, thickened; and the two basal joints more elongate.

S. præteritus has somewhat the *facies* of a very small specimen of *elongatulus*; from which its unpunctured thorax, the basal furrow whereof has no middle keel, and its less convex elytra at once distinguish it.

I have long had an example of this species set aside in my collection, taken by myself in the Croydon district; and I find two specimens of it also set apart in Mr. G. R. Waterhouse's cabinet, and taken by him in the Isle of Wight and at Erith (associated with ants), and another in Mr. E. A. Waterhouse's collection, taken on the chalk near Seaford on the south coast; recently, I have seen another individual, taken by Mr. G. C. Champion on the chalk, near Caterham, also associated with ants; and Dr. Sharp informs me that he also has it, distinguished from the species known to us as *Sparshallii*.

Denny's locality for the latter is moss in a damp wood, Norfolk; and most if not all of our specimens of it come from the midland and eastern counties.

The insect which I have just described has been returned to me from Paris as *S. Sparshallii*, Denny ; but, apart from the fact of the latter having been originally described by our countryman, who is only recently dead, and to whom the *Scydmænidæ* of the chief British collections (in all of which that I have seen, *S. Sparshallii* agrees with my conception of that species) in all probability have been submitted, I think that the colour, build and pubescence of the insect figured by Denny as *Sparshallii* evidently point to the species known to us by that name. Denny's *description* is not very precise ; but the ferruginous colour, *gradually* clavate antennæ (in which his colored figure agrees, the much magnified separate outline having the 8th joint absurdly enlarged, and quite at variance with the description and colored figure), punctured thorax and elytra which he mentions, agree well with our *Sparshallii*, and not with *præteritus*. Against these points, however, must be set the fact that Denny only states the thoracic basal furrow of his insect to extend a little way up the sides, omitting to notice the second minute fovea that occurs in it on each side between the middle and the outer margin.

Schaum originally (Anal. ent., 1841, p. 13) merely referred to Denny's *Sparshallii* as a species which he had not seen, and apparently closely allied to *elongatulus* : afterwards (Germ., Zeitschr. f. d. Ent., v, p. 467) he considers he has identified it from German and other examples ; but his mention of its having no foveæ in the transverse thoracic groove, of the fact of Erichson's specimen not agreeing with Denny's description in the punctuation of the head and thorax, and of its color also being dark pitchy brown (for which he endeavours to account by considering Denny's specimen to have been immature), show with almost certainty that his insect is that I have just described. Indeed, were it not that, in giving the diagnostic characters of his *S. helvolus* (p. 467), he states the transverse thoracic basal groove to be *not* so deep as in his *Sparshallii*, I should, as all other characters agree well enough, have no hesitation in considering *helvolus* to be identical with Denny's *Sparshallii*. Thomson's *helvolus* (Skand. Col., ix, p. 358) has evidently nothing to do with Schaum's species of that name.

The color and thoracic characters of Fairmaire's *Sparshallii* (Faun. ent. Franç., Col., p. 348) agree with Schaum's and not with Denny's species : but the French author terms the thorax square, and much narrower than the elytra, the apex of which is, according to him, abruptly rounded. He appears to have described a *mélange* of the two species ; as those latter characters suit Denny's insect.

Redtenbacher (Faun. Austr., ed. 2, p. 274), so far as he goes.

follows Schaum; but Thomson (*l. c.*, x, p. 352), though quoting the Austrian author, has evidently recognised our *Sparshallii* ("*rufopiceus, foveolis 4 basalibus in impressione profundâ sitis*").

SCYDMÆNUS PUMILIO, Schaum (Stett. ent. Zeit., vii, 1846, p. 356), is the *minutus* of Chaudoir (Bull. Mosc., 1845, p. 186) re-named, on account of the prior species of that name of Fabricius and Gyllenhal. Chaudoir states it to be smaller and proportionately shorter than *exilis*, Er. (*vicinus*, Chaud., *teste* Schaum), to have a very slight longitudinal medial thoracic line, and to occur under pine bark. According to Schaum, it is really most nearly allied to his *helvolus*, and is easily distinguishable from all in its section by being, next to *nanus*, the smallest in the whole genus, about $\frac{1}{4}$ line long. This species has been recorded as British, apparently solely on the opinion of M. Aubé, as the characters given for it (*cf.* Ent. Ann. 1863, p. 90) do not accord either with Chaudoir's or Schaum's remarks. I think, therefore, its name must be erased from our list. The few supposed British exponents of it that I have seen are small *Sparshallii*.

CLAMBUS PUNCTULUM, Gyll. This species must also, I think, be erased from our list. It was introduced by Mr. G. R. Crotch, who stated that it differed from *minutus* in being about half the size, and gradually attenuate behind;—characters not entirely agreeing with those given by Gyllenhal, who (Faun. Suec., iv, p. 515), comparing it with *minutus*, says (besides the difference in size) that its elytra are entirely black, more obtuse and but little narrowed behind (acuminate in *minutus*), its thorax has the lateral margins only narrowly rufescent, and its legs are black, with only slightly lighter tarsi. I possess one of Mr. Crotch's specimens, which is a rather small example of *C. minutus*.

PHALACRUS BRISOUTI, *sp. n.*

Breviter ovatus, convexus, niger, nitidissimus, antennis pedibusque (ac præcipue anticis) piceo-nigris, tarsis dilutioribus; elytris subtilissime punctato-striatis, interstitiis punctulis paucis minutissimis, fere obsoletis, certo sitâ striis quasi simulantibus, notatis, superficie totâ (oculo fortiter armato) vage, obsoletissime, transversim minute rugulosâ; antennarum articulo apicali intus ad apicem leviter sinuato.

Long. corp. 1 lin. (Anglic.).

I characterize as above the insects mentioned by me in Ent. Ann., 1872, p. 67, as in my own collection, from Lee, and taken by Mr. G. C. Champion near Gravesend, which I referred with much doubt to *P.*

brunnipes, Bris., and which M. Brisout has returned to me as not that species, but another, allied to and distinct from his *P. seriepunctatus*. At the same time, M. Brisout has corroborated as true *brunnipes*, another insect (from Mr. G. R. Waterhouses's collection, taken, I believe, by Mr. Brewer) sent to him by me.

I have not seen *P. seriepunctatus*, but, from the description (in Gren. Cat. et Mat., &c., 1863, p. 44), my insect would seem to be considerably smaller and rather less convex, of a shorter oval form, with rather darker legs and antennæ, and the elytra not exhibiting the appearance of being covered with closely packed rows of punctures.

From the insect returned to me as his *brunnipes* by M. Brisout, my species differs in being smaller, less convex (the thorax especially), of a rather shorter oval outline, and with the punctures of the striæ much more delicate and of the interstices almost entirely obsolete.

The very convex shape and short oval form, short and broadly clubbed antennæ and distinctly punctate-striate elytra of *P. substriatus* at once remove that insect from all of these species. *P. Brisouti* seems most nearly allied to *corruscus*, from which it differs in its average much smaller size (I have, however, an example of *corruscus* scarcely 1 line in length), its rather lighter colored fore legs, tarsi and antennæ, the club of which is rather broader and not so long, the apical joint being conspicuously broader and shorter, and not so acuminate, but slightly flexuous on the inner side towards the apex, and in its elytra being more obtusely rounded behind, and more evidently punctate-striate, with the interstitial punctures much less numerous. Its extremely delicate punctuation renders accurate definition very difficult: in certain lights there is, under a high power, a tendency to very minute and faint transverse rugulosity; in others, the unpunctured portions near the striæ catch the eye and cause the elytra to appear to possess narrow, smooth, and somewhat elevated longitudinal markings.

CRYPTOPHAGUS PUNCTIPENNIS, Ch. Brisout.

M. Brisout informs me that the specimens mentioned by me in Ent. Ann., 1872, p. 69, are certainly to be referred to this species: the character, therefore, of its smaller size, as compared with *pilosus*, that has been attributed to it, is no longer reliable, as one of my examples, corroborated by M. Brisout, is as large as (if not larger than) my largest *pilosus*.

ATOMARIA BADIA, Er.

The individual taken at Esher by Dr. Power, and provisionally referred by me as above (Ent. Ann., 1872, p. 70), is considered by M. Brisout to be Erichson's *A. badia*.

ATOMARIA FUMATA, Er.

M. Brisout has also returned the insect brought forward by myself under this name, and recently queried in Dr. Sharp's catalogue, as the continental notion of *A. fumata*.

CORTICARIA OBSCURA, Ch. Brisout.

M. Brisout considers the insect recorded by me with some reservation under this name (*cf.* Ent. Ann., 1872, p. 71) to be possibly *longicollis*, Thoms., with the diagnostic characters of which, however, as compared with *C. serrata*, it does not seem to me in the least to accord. As, however, there are so many species described in this genus, of which there is great uncertainty, I refrain for the present from adding to the difficulty of disentangling them by describing this one as new without further evidence.

ANTHICUS SCOTICUS, *sp. n.*

Plumbeo-niger, opacus, pube griseo-micanti dense vestitus, antennis pedibusque vel luride testaceis vel fere totis piceo-fuscis; capite lato, postice truncato, fortius confertim fere ruguloso-punctato, lineâ longitudinali medianâ lævi; thorace brevi, confertim at minus fortiter punctato; elytris quam thorax multo latioribus, ad basin truncatis, convexis, lateribus pro parte apicali tertiâ breviter oratis, sat fortiter fere confluentim punctatis.

Long. corp. 1½ lin. (Anglic.).

This is the insect discussed by me in Ent. Mo. Mag., iii, p. 233, and Ent. Ann., 1868, p. 70; and which, as it does not in the least accord with *A. ater* or *A. flavipes*, Panz., to both of which it has been referred, and as I have recently had it returned by M. Ch. Brisout as unknown to him, I now describe as new. It is the *Anthicus* 6 *sp. nov.*? of Wat. Cat., and has been found, according to Mr. A. Murray, at Raehills and in Aberdeenshire; it has also been sent to me by Mr. Morris Young, of Paisley, and has recently occurred in some numbers to Dr. Boswell Syme and Mr. E. A. Waterhouse on the shores of Loch Leven.

Of our recorded species it most resembles *A. angustatus*, Curtis, from which it differs in its stouter and shorter antennæ, larger size, broader build, darker limbs, broader and shorter thorax, which is more globular in front, and has no tendency to pitchy-red in color, much broader elytra, which are transversely truncate at the base (with very evident and almost square shoulders), and rather more closely punctured, &c.

The much finer punctuation alone of *A. flavipes* is sufficient to show that this Scotch species cannot be referred to it with propriety ; though it is evidently closely allied to it.

One of my specimens seems, in certain lights, to possess a faint tendency to a dark brown humeral blotch.

SMICRONYX REICHEI, Gyll., in Schön. Gen. et Spec. Curc., vii, p. 314.

Of this species, originally described from the south of France, two British examples have come under my notice ; one, in very fine condition, taken by Mr. E. A. Waterhouse in the early summer of 1871, at Folkestone, by sweeping on the top of the cliff at the commencement of the Warren ; the other, larger, but much abraded, taken in August, 1868, by Mr. G. C. Champion, by promiscuous sweeping between Folkestone and Dover. This insect, on account of its robust build and stout limbs, has much the facies of an unnaturally large example of *Tanysphyrus lemnæ* ; compared with its largest British congener, *S. jungermanniæ*, it is rather larger, with a thicker and much duller rostrum and much more thickly and coarsely punctured thorax ; and, when in good condition, is densely clothed with large grey and brown scales, which give it a tessellated appearance, much more conspicuous than in the slightly variegated and much more feebly built *S. cicur*.

10, Lower Park Field, Putney :
May, 1872.

Capture of Carabus intricatus in south Devon.—A magnificent example of this noble *Carabus* has been taken by my wife to-day, about two miles from Newton Abbot, on the road to Torquay. It is a female, and one of the finest I have ever seen, measuring nearly 17 lines in length. It occurred beneath a log of wood, amongst some large beech trees belonging to Sir Walter Carew, at Aller Bridge.—T. V. WOLLASTON, Teignmouth : April 18th, 1872.

Capture of Carabus auratus in London.—Last month, I found a lively specimen of this somewhat dubious British species among some purchased radishes, which the seller assures me are of English growth.—R. BURNY, Brecknock Street, Camden Town : May, 1872.

A new locality for Acrognathus.—On Saturday, the 27th April last, I caught here a specimen of *Acrognathus mandibularis*, flying in the hot sunshine. This appears to be the third locality in England where that rare species has been found ; both the other places of its capture (Darenth and Epping) being also in the neighbourhood of London. The insect's build and habit would scarcely lead one to expect to catch it on the wing.

Cicindela sylvatica occurred here as early as 13th April this year.—JOHN GRAY, Claygate, Esher : May, 1872.

Captures of Coleoptera near Maidstone.—By way of completing the list of noticeable species which I met with at Bearsted, I send a supplementary account of such as were not enumerated at pp. 155 and 254 of vol. vii. These are:—*Bembidium bruxellense*, *B. Mannerheimi* (abundant in a wet place), *Stilicus fragilis* (one only), *Thiasophila inquilina* and *Amphotis marginata* with *Formica fuliginosa*, *Ocyusa picina* (by cutting rushes), *Quedius truncicola*, *Gyrophæna strictula*, *Homalium salicis* (three, in a hayrick), *Quedius scintillans* (not uncommon in hayricks and elsewhere), *Stenus contractus*, *S. major*, *Monotoma spinicollis*, *brericollis*, and *quadracollis*, *Atomaria gutta*, *Baris T-album*, *Ceuthorhynchus alliarie*, *urticæ*, *suturellus* and *cochlearia*, *Otiorhynchus raucus*, *Metallites* (in abundance on one broom plant, with *Polydrusus confluentis*), *Apion punctigerum*, *Tychius pygmeus*, *Caliodes subrufus*, *Ochthebius bicolor* and *rufimarginatus*, and *Corylophus cassidoides* (common).—H. S. GORHAM, Ruster Rectory, Horsham: May 14th, 1872.

Note on blind beetles in bees'-nests.—Some time ago (Ent. Mo. Mag. vi, p. 89) I recorded the occurrence of *Leptinus* in bees'-nests. I have now to add that another of our indigenous blind species, *Adelops Wollastoni*, was found by me in the same habitat, at Staple, in Kent, last summer. This nest contained in addition a great number of *Cryptophagus setulosus*, and was enveloped in a web formed by a colony of the larvæ of one of the large honey-moths.—ID.

Hydradephaga near York.—I have captured the following species at Askham Bog, during the season of 1871, and possess such of them as are marked * in duplicate. *Haliphus obliquus*, **Hydroporus decoratus* (local here), **H. dorsalis*, **H. rufifrons*, *H. xanthopus*, **H. oblongus* (first taken here, I believe, by the Rev. W. Hey: this appears to be the only known British locality for the insect), **H. memnonius*, *H. melanarius* (one only), **H. obscurus*, **H. tristis*, *H. melanocephalus*, **H. Gyllenhalii*, **H. angustatus*, **H. umbrosus*, **H. neglectus* (two specimens here, and about fifty at Stockton Common: these appear to be the only recorded captures in this country of this species since it was first discovered by Dr. Power), **H. Scalesianus* (apparently confined to the York district, where it was first taken by Mr. Hey), **H. vittula*, **H. granulatus* (also **H. reticulatus*, from the river Foss), **Colymbetes exoletus* (common), *C. bistriatus* (a few), **C. Grapii*, **Agabus agilis*, **A. abbreviatus*, **A. femoralis*, **A. Sturmii*, *A. dispar* (a few), **A. congener*, **A. didymus*, **A. chalconotus*, *Dytiscus punctulatus*, and **Hydaticus transversalis* (in plenty).

In the *Philhydrida*, *Heterocerus femoralis*, **Berosus signaticollis* (in abundance), and **Cyclonotum orbiculare*.—H. HUTCHINSON, 21, St. Anne's Street, Cemetery Road, York: April, 1872.

Note on capture of Agriotes sordidus.—I have, during the past winter, taken a ♂ example of *Agriotes sordidus*, Ill. (recorded as British on the authority of a single specimen taken long ago by Mr. Wollaston, at Southend), out of flood-refuse, on the banks of the Thames at Hampton; and, on looking over some unexamined *Agriotes* in my collection, I find I have two more, a ♂ and ♀, taken in flood-refuse on the banks of the Medway, near Chatham, in April, 1871. My insects are almost of the same size and build as *A. obscurus*, from which they differ in the more slender joints of their antennæ, and their more shining thorax, &c.; being in fact allied to *A. sputator*, from which they differ (apart from their larger size and flatter appearance) in

having the sides of the thorax more evidently contracted in front, and the upper surface more closely (the interstices of the elytra especially more finely) punctured, and very evenly pubescent.—G. C. CHAMPION, 274, Walworth Road, S. : May, 1872.

Note on the occurrence of Chalcididous larvæ in the imago of Cynips.—Last summer, a correspondent sent me a mass of succulent root galls, on opening a few of which, I found inside the large apterous *Cynips* in the perfect state.

In a spirit of carelessness and indifference, I placed the remainder in a pill-box, and did not examine them until recently, when I found all the *Cynips* dead, some out of the cells, and some remaining in them. With some of the latter, whose remains were rather mutilated, was, in each case, a Chalcididous larva, still alive, but in a dying condition, from the dry state in which the insects had been kept. These had evidently fed within the *Cynips* after its arrival at the perfect state; but all Chalcididous larvæ previously found by me associated with *Cynips*, have left their hosts whilst the latter were still in the larval condition.—T. ALGERNON CHAPMAN, Hereford : April, 1872.

Note on the habit of Acanthosoma griseum.—I had again the pleasure of watching the proceedings of the materfamilias of this species last summer, and now send some dates to assist Hemipterists proper in looking for a similar sight.

On June 4th, 1871, I noticed a female *A. griseum* on my birch tree; she remained near the same part of the tree till the 6th, on which day I found her laying eggs; over these she brooded without moving till the 29th, when the young bugs were hatched; on July 9th they moulted, and, on the 13th, began to move off their native leaf; I now sent them to Mr. Douglas—but the same ill luck which attended the brood of 1870 pursued this second family also.—J. HELLINS, Exeter : May 3rd, 1872.

Thrips soiling framed engravings.—While recently staying at a quiet old-fashioned inn nestling among the pleasant Surrey hills, I amused myself by inspecting the motley array of engravings on the walls of the parlour, and, to my astonishment, found that these rural treasures of art were speckled all over with countless numbers of a black *Thrips*, which had got between the paper and the glass, and had perished there in every imaginable posture, a discoloured spot surrounding each individual. I cast my eyes about for other traces of this visitation, but failed to detect any. In size, this *Thrips* varied between two and three millimetres in length, but I believe only one species was represented. I regret to be unable to give its trivial name, but my colleagues will understand that, like a bishop "*in partibus*," I abstained from making known my vocation; and, therefore, did not like to ask to have one of the frames taken to pieces to obtain specimens.

In the "*Stettiner ent. Zeitung*," 1870, p. 325 *et seq.*, Herr Cornelius has given several instances of this kind as occurring in Germany (Bonn, Grevenbroich, Dortmund). His description of the insects would well apply to those I saw. According to his statement, the insect stands near *Thrips longipennis*, Brm., and is the same as the one met with in swarms late in summer, and annoying to man by tickling faces and hands, &c. The author explains their appearance in pictures by their habitually seeking shelter for the night in country houses, and their endeavour to stow themselves away at the end of the better season. There

may be some truth in this, but why do they select transparent hiding places, thus defeating the probability of security? We know that they are most active in the bright sunshine: are they such lovers of light, that even their generally inefficient shelter from the winter's cold must be exposed to the broad daylight? or why this marked preference for transparent cover?—ALBERT MÜLLER, South Norwood, S.E.: March 22nd, 1872.

On the forms of Zygæna trifolii.—Mr. Briggs' paper on the existence in England of two forms (species?) of this insect (Trans. Ent. Soc., 1871, pp. 417—440) has been the subject of discussion at the meeting of the Belgian Entomological Society, held on the 6th of April last. In the *Compte-rendu* of that meeting (No. 73) Baron De Selys-Longchamps gives an abstracted analysis of the paper, and concludes with the following remarks:—

“In examining 40 individuals of *Z. trifolii* in my collection (and in making a provisional separation of the two forms noticed by Mr. Briggs), I find that the five red spots present five principal variations, and that this results from the manner in which the two median spots are modified, according to whether they are separate, united into one, confluent with the terminal spot, with the basal spots, or with both terminal and basal.”

He goes on to say, that the disposition of the varieties and their synonymy, according to Belgian specimens, somewhat modifies the arrangement as given in Staudinger's catalogue, and enumerates the forms as under:—

a. (Type) *trifolii*, Esper (partim), 34, fig. 5; Hübner, 135.

The median spots united, isolated from the terminal and basal spots.

b. Aberration *orobi*, Hübner, 133.

The two median spots separated.

c. Aberration *glycirrhizæ*, Hübner, 138; Freyer, 164, fig. 3.

The two median spots united, and confluent with the terminal.

d. Aberration *minoides*, Selys (1845); *confluens*, Staudinger (1871); *trifolii*, partim, Esper, 34, fig. 4; *achilleæ*, Hübner (*nec* Esper), 165.

All the spots united into a band. *Filipendulæ*, Hübner, 166, is a sub-variety, in which the band is less perfect, and forms a passage towards the aberration *glycirrhizæ*.

e. Aberration *basalis*, Selys (1872); *trifolii* (partim), Hübner, 134.

The median spots united and confluent with the basal. This last is less common than the others; none of them are constant, but pass from one to the other.

—Eds.

Natural History of Agrotis cursoria.—This is one of the many species I owe to the kindness of Mr. C. G. Barrett, since he has turned his attention to the insect fauna of the coast of Norfolk.

On September 4th, 1869, he sent me a dozen moths (mostly females) alive; and in the course of a week some of them laid batches of eggs in little clustered groups of about forty or fifty, and also a few single ones scattered amongst the sand in their

prison. These eggs I soon after conveyed to what seemed a promising spot for a future colony at a sand-hill on the coast, with the intention of looking after their larval produce in the following summer; but my friend spared me all that trouble by sending me a number of the larvæ, in different stages of growth, on June 11th, 1870, and a further supply on the 20th; these all fed well on *Arenaria peploides*, *Viola Curtisii*, *Triticum junceum*, &c., and became full fed towards the end of June, when they burrowed deep into the sand for pupation, and the perfect insects made their appearance from the 1st to the 12th of August.

The egg of *cursoria* is rather small in proportion to the size of the moth, nearly globular, flattened a little at the base, very finely ribbed and reticulated, and of a flesh colour.

The larva when young is long and slender for an *Agrotis*; but, as it approaches half growth, it becomes of tolerably stout proportions, and, when full grown, is very decidedly plump. Its form is cylindrical, tapering a little at the first three segments, the head being the smallest, though full and rounded in outline, it tapers also on the two hinder segments; the segmental divisions and sub-dividing wrinkles are very well defined.

The colouring varies according to its size, but the head and the plate on the second segment are invariably of a pale brownish-buff tint; the general colouring of the body, up to more than half-growth, is a lively glaucous-green on the back, and rather bluish or greenish-grey on the sides, with the following details: the dorsal line is bluish-grey, outlined with dark greenish-grey; the sub-dorsal line is of a pale or whitish-grey, edged above with a strongly contrasting dark greenish-grey line; midway between this and the spiracles, on the greenish-grey, rather transparent, ground colour of the side, there runs another line of pale whitish-grey, but undulating and interrupted in character; beneath this again, as far as the spiracles, the ground colour is darker; then follows a broad stripe of greyish-white, having a fine, dark, grey line running through it, the skin in this region being rather rugose: the belly and legs are rather pale greenish-grey; the spiracles are black, and the tubercular dots dark brown; the head and plate behind it are highly polished, and the rest of the body smooth skinned and shining.

Soon after this period of half-growth, the larva comes to be parti-coloured for a time, the front segments remain green, whilst a patch of ochreous tinges the back of the hinder segments; by and by, this by degrees spreads below, and extends gradually forwards, keeping pace with the growth of the larva until it has attained its full size, when the whole of the body is of the same buff colour as the head, relieved by the whitish-grey lines before described, which are edged with short streaks of darkish grey just at the beginning of each segment; the tubercular dark brown dots are now very conspicuous.

The shape of the pupa is like that of many of its congeners, moderately stout, smooth, and rather shining, and of a pale golden-brown colour.—WILLIAM BUCKLER, Emsworth: *May*, 1872.

Description of the larva of Nola strigula.—I am indebted to the unvarying kindness of Mr. W. H. Harwood, of Colchester, for valuable information concerning the habits of this pretty species, and for opportunities of studying and describing its larva, examples of which I received from him on June 15th, 1869, and on June 8th, 1871.

These larvæ fed on oak, principally on the under cuticle of the leaves, and when full-fed, spun up in small boat-shaped cocoons of silk, about $\frac{5}{16}$ inch in length, assimilating perfectly in colour to the surrounding surface of the bark on which they were constructed,—a circumstance which rendered their detection very difficult. After the escape of the moths, which took place sometime about the middle of July, the cocoons still retained their form and appearance.

For the sake of close examination, one individual was kept without bark until too late for its spinning a perfect cocoon, and at last it attached itself to the underside of a leaf by the tail amongst a few threads, and there pupated much after the manner of an *Ephyra*.

The full-grown larva is but little more than three-eighths of an inch in length, its body is rather stout in proportion, thickest at the third and fourth segments, and tapered a little from the seventh to the anal extremity; the head is full and rounded, but of less bulk than the second segment; the body is rounded on the back and sides, and rather flattened beneath; it has three longitudinal rows of prominent wart-like tubercles on each side, *i. e.*, six on each segment, bearing fascicles of radiating hairs; it has fourteen legs, the first ventral pair situated at the eighth segment.

The colour of the body is pale buff, sometimes partaking of a flesh tint; the dorsal stripe is yellowish or whitish flesh colour, very broad, and well-defined by a fine border line of brownish-grey; the sub-dorsal line is brownish-grey, but interrupted at the segmental divisions; all the tubercles are broadly ringed with this colour; a conspicuous blackish-grey blotch covers the back of the seventh segment, and extends from one sub-dorsal line to the other; there are indications of other blotches of the same colour on the tenth and eleventh segments, but these are cut in twain by the broad, clear, pale dorsal stripe travelling through and separating them into a narrow dark mark on each side of the back; the sides are flesh colour, the spiracles are entirely hidden from observation by the numerous hairs which diverge near them from the tubercles; the ventral surface is pale flesh colour and naked; the head blackish-grey, the lobes narrowly margined in front with pale flesh colour; the hairs of the tubercles on the anterior segments are pale brown mixed with a few of dark grey, and some few of them in front of the second segment, and especially on the third, are very long; the tubercles on the rest of the body are furnished with hairs of a paler yellowish colour; on the back of the anterior part of the anal segment, issuing from each side, are a few hairs of extra length, which converge and taper on each side to a fine point directed outwards in a slightly downward curve, so that these two fine points of hair resemble a forked tail.

The pupa is four lines long, including the cast larva skin adhering to its tail; it is not very stout, of ordinary shape, though the wing-cases are long in proportion; these last are reddish-brown in colour, the other parts very dark brown and without much polish.—*Id.*

Description of the larva of Eupithecia subciliata.—In the month of August, 1871, Mr. Sang, of Darlington, kindly sent me two living females of *Eup. subciliata*. One of them was “in articulo mortis” when they arrived, the other, which was very lively, I placed under a large bell-glass with some sprigs of maple (*Acer campestre*) in a vial of water.

In about a week's time, I found she had deposited about twenty eggs at the junction of the footstalk of the leaf with the stem; some were laid upon the next year's bud, others upon the sheath-like covering of the footstalk. They were all carefully pushed in and concealed from view, and could only be discovered by pulling off the old leaf. They were at first whitish in colour, but turned red in a few days.

During the first week in April, thirteen young larvæ hatched out, and, for a few days, fed well on the young leaves of the maple; but, before the end of the month, with one exception, the whole brood died off. I have no doubt that the cold, changeable, ungenial weather was too much for their delicate frames.

The sole survivor has, I am happy to say, arrived at a healthy maturity, and, after taking the description which I append, I have forwarded it to Mr. Buckler, of Emsworth, who has promised to take its likeness in his usual life-like manner.

"Short, of uniform bulk. Rests with the head slightly incurved. Ground colour pale yellowish-green. Central dorsal line dark green, somewhat elliptically enlarged at the centre of each segmental division. On each segment, on either side of the dorsal line, a small, dark green spot. Sub-dorsal and spiracular lines yellowish-white, waved, and indistinct. Belly without markings. Segmental divisions yellowish. Tip of dorsal caudal segment whitish. Whole body more or less translucent, and sparsely strewed with short, whitish hairs.

"Hatched first week in April; full-fed first week in May."

I hope some one will send me eggs of *E. pygmaea* and *togata* this year. *E. pernotata*, *egenata*, and *affinitata* (whatever this may be) will then be the only British species of the genus of which the larvæ are not known to me.—H. HARPUR-CREWE, Drayton-Beauchamp Rectory, Tring: May 3rd, 1872.

[Our remarks concerning *E. subciliata* in the May No. (*vide* Vol. viii, p. 290) were evidently prophetic, though we were scarcely prepared for so rapid a fulfilment of the prophecy.—EDS.]

Description of the larva of Tephrosia consonaria.—On May 15th, 1871, I received from Mr. H. W. Marsden, of Gloucester, a few eggs of this species; they were oval, and in colour dull reddish-purple. In a fortnight, the young yellowish-green larvæ emerged, and took readily to oak and birch. By June 23rd, a length of about five-eighths of an inch had been attained, and the general colour was dark brown, with a broad yellow double medio-dorsal stripe; the head paler brown than the ground. On July 25th, they were full-fed, and may be described as follows:—

Length, nearly 1½ inches, and very slender in proportion; head a little wider than the second segment, globular, rather flattened on the face, and very slightly notched on the crown. Body nearly cylindrical, but slightly flattened on the dorsal, and still more so on the ventral, surface. The segments overlap each other, and thus render the divisions conspicuous. The usual dots slightly raised, and on the twelfth segment appear as two slight humps; the skin has a wrinkled appearance.

The ground colour varies in different specimens from yellowish-green to yellowish-brown; head pale, thickly mottled with light or dark brown, according to the shade of the ground of the body. A dark green pulsating vessel, bordered on each side with yellowish-green, forms the medio-dorsal stripe; there are no perceptible sub-dorsal or spiracular lines. The spiracles are white, encircled with black; the slight

humps on the twelfth segment black. The ventral surface is yellow, tinged with green; legs and prolegs brownish.—GEO. T. PORRITT, Huddersfield: *May 16th, 1872.*

Aspidisca bred from poplar leaves.—On the 4th April, I began to breed the *Aspidisca* from the cases formed in the leaves of poplars (see figure on cover of Ent. Annual, 1872), which Lord Walsingham collected last autumn, near Fort Klamath, in Oregon. I have now bred forty specimens, and hope to breed many more. It so closely resembles the *Aspidisca* which feeds on the leaves of *Cratægus tomentosa* (*splendoriferella*, Clemens), that I do not at present see how it is to be distinguished from that species.

At a first glance, one might almost fancy the insect was *Cemiostoma scitella*; the basal half of the anterior wings is of the same leaden-grey colour, and the apical half is tawny, varied with black and white, with a black line projecting in the cilia at the apex; but the absence of eye-caps, the thicker antennæ, and more glossy head, shew at once it is no *Cemiostoma*, and the insect has the same curious way of tumbling about on its head which we notice in *Heliozela sericiella* when in the net; and, clearly, from the habit of the larva, the relationship ought to be rather with *Heliozela* and *Antispila*.—H. T. STAINTON, Mountsfield, Lewisham: *May 17th, 1872.*

On the Lepidoptera of the "Breck"-sand, Norfolk.—During last season, I had several opportunities of collecting on the celebrated "Breck"-sand of the Thetford and Brandon district, and venture to offer some notes thereupon.

The first visit was in the middle of June when most of the special Brandon insects are generally out, but from the backward season they did not appear so freely as usual. *Heliothis dipsacea* flew in the sunshine about the flowers of *Lycopsis arvensis*, an occasional *Agrophila sulphuralis* was disturbed from among nettles or *Convolvulus*, *Spilodes sticticalis* flew up here and there from its favourite hiding place—the bare ground, and a worn out *Aspilates citraria* seemed to show that one interesting species was already over. Later in the afternoon, a few *Acidalia rubricata* turned up, and two or three *Oxyptilus latus*. Tortrices were scarce, two or three *Dicrorampha plumbagana*, with *Eupacilia atricapitana* and *anthemidana*, being the principal. The best haul of the day was at sunset, when I "happened upon" a favourite spot for *Tinea imella*, exactly at its time of flight, and secured a good number. *Douglasia ocnestomella* and *Coleophora onosmella* were on the wing at the same time, and *Gelechia marmorea* was already out. At dusk, *Dianthæcia carpophaga* flew about the flowers of *Lychnis vespertina*, and *Silene conica* at its usual reckless pace; and a careful search after dark among *Sisymbrium sophia* and *cheiranthoides*, and on the patches of cultivated sainfoin (*Onobrychis sativa*), produced a few *Lithostege griseata*; but a miserable, cold fog came on and put a stop to collecting.

Later in the month, my friend, the Rev. E. N. Bloomfield, being in the neighbourhood, we arranged a trip together, but, as usual in pre-arranged excursions, the weather was most unpropitious, and finally, just when our best time for collecting ought to have come on, the rain came down in such style as completely settled the matter. A hard afternoon's work had produced but two or three each of *Agrophila*

sulphuralis, *Spilodes sticticalis*, and *Oxyptilus latus*; but *Platytes cerussellus* swarmed among short grass (the females requiring to be searched for at its roots). *Coleophora annulatella* was pretty common among *Chenopodium*, and *Ocnerostoma piniariella* among fir; and single specimens of *Gelechia distinctella* and *Elachista paludum* occurred.

Being busily engaged elsewhere, a month passed before the next visit, which was also in the company of the Rev. E. N. Bloomfield. This time the elements played us a different trick, for a gale arose, and blew with such fury, that we must have had a blank day, had we not, fortunately, hit upon a sheltered park fence, overhung by firs, larches, &c., and here we compensated ourselves. *Eudorea cratægalis* literally swarmed, and we each obtained a fine series of the scarce and little known *Spilonota lariciana*. *Aventia flexula* also occurred, with *Acidalia inornata*, *Eupithecia lariciata* (worn), *Dichelia Grotiana*, and *Stephensia Brunnichella*. While I kept to the fence, Mr. Bloomfield went into the fields to look for larvæ of *Lithostege griseata*, but with little success. Plenty of *Sisymbrium* was searched and swept, but very few larvæ were found. Previously, we had wearied ourselves by an unsuccessful hunt for larvæ of *Agrophila sulphuralis* and *Oxyptilus latus*, the only result being that, from among the low plants, along with swarms of *Gelechia desertella*, we disturbed a few *G. pictella*.

We also had a search for larvæ or pupæ of *Eupæcilia anthemidana* in the seed heads of *Erigeron acre*, and obtained three pupæ. Probably we should have obtained a fair number, but that some one had been before us and cut the centre flower of nearly every plant, that being the only blossom which was forward enough to receive the egg at the time of the first brood. Certainly, hundreds of plants had been cut. If *anthemidana* be not exterminated in that locality, it will not be the fault of this industrious collector.

The larva eats out the seeds of the *Erigeron*, one flower, apparently, serving it for its whole life, and spins up within the pappus, leaving very little evidence of its operations.

When the wind abated, we found *Gelechia dodecella* common, and *Batrachedra pinicolella* not scarce, among the young fir trees; and, as it got dark, we met with *Crambus falsellus* and *pinetellus*, and *Anerastia lotella*, while *Homæosoma eluviella* and *nebulella* were on the thistle blossoms, *Hadena chenopodii* and *Agrotis aquilina* flying among *Silene*, and *Agrotis tritici*, *Caradrina blanda*, and other common *Noctua*, as common on the rag-wort flowers as though they were still at the sea-side, or had received the habit as a tradition in uninterrupted succession from their remote ancestors of the Post-glacial era, when the "Breck"-sand was a range of coast sand-hills. At lamps, when returning, we found a curious red *Clisiocampa neustria* (not a common species, apparently, in Norfolk), with *Oncocera ahenella* and *Acidalia immutata*.

Being anxious to obtain some more *Spilonota lariciana*, I went again in the beginning of August, but the fence was deserted, and I only succeeded in beating a single specimen from the young firs. Apparently, the scarcity of this insect in collections arises from the difficulty of disturbing it from its haunts in the larch trees. On this occasion but little was to be found in the day time. *Eudorea cratægalis* was still abundant on tree trunks, but getting worn; *E. truncicolella* just

coming out. Some aspen trunks were alive with *Gelechia populella* and *marmorea*, and *Batrachedra præangusta*; and *Thecla quercus* had been tempted from his high estate by the abundant blossoms of *Knautia arvensis*. Towards sunset, specimens of the second broods of *Acidalia rubricata* and *Oxyptilus latus* appeared, with plenty of *Catoptria citrana* (frequenting *Achillea millefolium*), and a very fine and beautiful *Oncocera ahenella*. At dusk, I wandered on to a heath where the whistling of the stone curlews sounded wild and shrill. Here, among the young fir trees, *Lithosia complana* made its appearance, and quite a little swarm of them hovered round one low bush in which a ♀ was concealed. Near by, on some broken ground, thistles were blooming in abundance, and on them, with *Lithosia complana*, were *Homæosoma eluviella* and *nebulella*. But the greatest attraction was the abundance of blooming scabious (*Knautia arvensis*). On it, after dark, was *complana* again, with various *Noctue*, and several specimens of the scarce *Pempelia abietella*.

One day, a week later, was the grandest of the season. The heat was simply intense, and insects felt it. There was no difficulty in stirring them up, but to keep them in sight was not so easy. *Noctue*—*Agrotis valligera* and *tritici*, *Hadena chenopodii*, &c., excited by the hot sun, and unable to remain in their hiding places, were tearing about from flower to flower, while the pretty little *Acontia luctuosa*, quite in its element, was taking matters more easily. *Aspilates citraria* (second brood) and worn *Catoptria citrana* tumbled out in every direction, *Oxyptilus latus* and *Spilodes sticticalis* were almost common, and *Acidalia rubricata* nearly wild with the heat. They were gone like a flash. One specimen had to be turned out of its favourite patch of weeds three different times before it would submit to be caught. It became necessary to hide my bag in the cool shade of thick bushes, and not to keep my captures long in my pocket, lest they should get roasted. By keeping them cool, however, I saved many a specimen that would otherwise have got beaten to fragments.

As evening advanced, insects became more composed, and more easily captured. *Sericoris cespitana* appeared pretty commonly, and with it *Coleophora saturatella* and *inflata*. As soon as it was dark, the scabious flowers became again the attraction. *Lithosia complana* common, but worn, *Eudorea truncicolella* also common, *Macaria liturata*, and a few more *Pempelia abietella*,—all upon them till the moon came out brightly from behind the firs and drove them away. Several specimens of *Gelechia distinctella* were also taken, flying over these flowers, and even a dissipated *Acontia luctuosa*, sipping the sweets at 10 p.m. Returning home, a lovely specimen of *Eupæcilia Degreyana* waited for me on a gas lamp.

A fortnight later, I made my last visit for the season. Most of the species last named were still out, but worn; even *Gelechia desertella* and *marmorea* were not over, and I met with *Crambus latistrius* and *Trifurcula immundella*; and at the lamps, at night, found *Paraponyx stratiotalis*, *Tinea imella* (second brood), *Elachista cerussella*, and *Opostega salaciella*; but the noticeable circumstance of the day was that *Agrotis valligera* was actually swarming, both by day and night, on the scabious flowers, accompanied by abundance of *A. tritici* (not the dull brown *tritici* of other inland districts, but the dark, variable, and richly coloured *tritici* of the coast sand-hills), but of their constant coast companion, *Agrotis cursoria*, not one single specimen could be found, nor can I ascertain that it has ever been seen in that district.

I did not notice when collecting that the *Lithosia complana* found so commonly were not precisely like those of the south of England, but slightly smaller, with rather straighter costa, and in some specimens a decided increase of the leaden colour on the hind-wings—intermediate specimens, in fact, as I believe between *complana* and *molybdeola* of Guenée. Taking into consideration the fact that Lord Walsingham took, three or four years ago, specimens in the west of Norfolk much more closely resembling the typical *molybdeola* from Lancashire, I am compelled to the belief that it is merely a variety or race of *complana*. I give my opinion, however, for what it is worth, since my friend Mr. Doubleday holds a different view, and considers my specimens to be true *molybdeola*, and not *complana*; while the interesting notice of the larvæ by the Rev. J. Hellins (E. M. M., vol. viii, p. 174) is also clearly against me.—CHARLES G. BARRETT, Norwich: 13th May, 1872.

Notes on the Lepidoptera of the Lancashire and Cheshire sand-hills.—On the 15th inst. I returned home from a four days' collecting excursion, in company with the Revs. J. W. and T. H. Daltry, of Madeley, to the sand-hills of the Lancashire and Cheshire coast. With the exception of the first evening, the weather was everything that could be desired, and we found the dwarf sand shallows in full golden bloom, a sight long to be remembered. The pretty sand lizards (*Lacerta agilis*) were darting about in the sun, whilst all the pools were alive, day and night, with the not unmusical croaking of hundreds of the peculiar and curious natterjack toad. In *Lepidoptera* we worked specially for *Tæniocampa opima*, and, in three nights, secured 106 specimens. Many of them were taken at the shallow bloom, but still more at rest, and a great many were depositing their eggs, which we found not only on *Rosa spinosissima*, which is said to be the food-plant, but on shallow, on old withered shoots of ragwort and hounds-tongue, and even on the marram or sand grass. This would give rise to a suspicion that the larva is a general feeder. When first laid, the eggs, being pale yellow, are very conspicuous, even at a considerable distance; but they soon change to purplish-brown, and are then much less distinct. The species seemed very local, and, perhaps, had it not been for the kindness of Mr. William Greasley, of Wallasey, a local Lepidopterist, we might have missed it. Amongst the other species taken were *T. gracilis* and *rubricosa*, *Gonoptera libatrix*, *Eupithecia pumilata*, *Nyssia zonaria*, *Anticlea badiata*, &c. Of larvæ, *Orgyia fascelina* was plentiful; of *Bombyx quercus* and *rubi*, a few were picked up, the latter spinning up; a few young *Satyrus Semele* on the marram grass; and under the sand amongst the same plant, those of *Leucania littoralis*; of *Epunda lichenea*, about 30 were found on the common *Sedum*; whilst hibernating *Liparis salicis* were obtained from the crevices of a row of palings, along which were a lot of willow bushes.—GEORGE T. PORRITT, Huddersfield: April 15th, 1872.

Captures during the month of March.—The following are some of my best captures during the month of March, and are, I think, unusually early. *Ocnerostoma pinariella*, 4th; *Andrena bicolor* and *æstiva*, 5th; *Tæniocampa miniosa*, 7th; *Heusimene fimbriana*, 11th; *Eriogaster lanestris*, 15th; *Necrophorus humator*, 25th; *Cucullia verbasci*, bred, 28th.—C. W. DALE, Glauvilles Wootton: 10th April, 1872.

Reviews.

THE MICROGRAPHIC DICTIONARY, 3rd edition, edited by J. W. GRIFFITH, the Rev. M. J. BERKELEY, and T. RUPERT JONES. London: JOHN VAN VOORST.

At p. 167 of vol. viii we had occasion to notice the first two parts of the new edition of this work. The succeeding parts up to pt. vii, commencing the letter C, are now before us. To all of our readers who possess a microscope we heartily recommend this Dictionary, which is a perfect mine of information on every subject connected with microscopic research, illustrated by many beautifully executed plates of crowded figures, and by wood-cuts without end. The entomological portion is carefully compiled, though perhaps scarcely brought sufficiently down to the present date. The article "*Chalcididae*," selected by us at random, is a good example of the manner in which exceedingly useful information may be condensed into small space. Possibly the Bibliographical references are not always so complete as might be desired; but, at any rate, they are sufficient to enable the student to know where to look for more extended information than could possibly be furnished by a Dictionary. In the article "*Arachnida*" we notice a curious error in bibliography. Among the books quoted is "Walker, British Spiders (Ray Society)." We could readily have believed that Mr. Walker had written such a work, but the facts oppose the supposition, and there is evidently no confusion with the elaborate Monograph by Mr. Blackwall, published by the Ray Society, for this is noticed in its proper place; how the error can have originated is a problem we will not attempt to solve.

DIE PFLANZEN FEINDE AUS DER CLASSE DER INSECTEN. VON J. H. KALTENBACH. I. ABTHEILUNG. Stuttgart: JULIUS HOFFMANN. 1872.

Sixteen years have elapsed since there first appeared in the "Verhandlungen des naturhistorischen Vereines der preussischen Rheinlande und Westphalens" a paper by J. H. Kaltenbach entitled "Die deutschen Phytophagen aus der Klasse der Insekten, oder Versuch einer Zusammenstellung der auf Deutschlands Pflanzen beobachteten Bewohner und ihrer Feinde," in which, under the successive genera of plants, arranged alphabetically, were enumerated the various insects of all orders by which they were infested. This first paper, extending to 100 pages, treated only of the genera commencing with the letter A; in 1858 appeared the letter B; in 1859, C; in 1860, D, E, F; in 1862 G, H, J, K, L; in 1864, M, N, O, P; in 1866, Q, R.

Necessarily, the work is, to a great extent, a compilation; and, as its materials are collected from a variety of sources, all are not equally trustworthy; but, quite independently of the compilations from other entomological publications, there is a mass of notes from Herr Kaltenbach's own observations, and other valuable information is extracted from the letters he had received from his numerous correspondents.

The periodical (published at Bonn) in which these papers appeared has but a very limited circulation in this country, and hence it has happened that the labours of Herr Kaltenbach had been continued from some time without attracting much attention. Micro-Lepidopterists will not easily forget the sensation produced in the year 1861 by the discovery of the larvæ of the genus *Micropteryx*, and by our finding, moreover, that these larvæ, which every Micro-Lepidopterist had been throwing away for years, under the idea that they were Coleopterous, had actually been described by Kaltenbach, and correctly referred to the genus *Micropteryx*, under *Corylus*, which was published in 1859.

It was then seen that he who studied the vegetable feeders of all orders conferred a great boon on specialists; for that larvæ neglected by them, as not apparently belonging to their group of insects, might really belong thereto: and Kaltenbach's papers have since then been eagerly studied by all who had access to them.

In 1867, a French translation of Kaltenbach's papers was commenced in a Belgian publication, "Archives Cosmologiques," but we do not know how far this has progressed, having only seen the letter B.

In the same year, a proposition was made to the Ray Society by one of the Editors of this Magazine for an English translation of Kaltenbach's Memoirs, to be brought out collectively in one volume, under the auspices of that Society, which the Council decided to accept; as, however, many years must elapse (from the numerous engagements of the Ray Society) before this translation can possibly appear, we were very glad to learn some months ago that Herr Kaltenbach had resolved to issue a collected edition of his scattered papers in German.

Of this, the first portion, extending to 288 pages (8vo), is now before us, and to all Entomologists who are masters of the German language will prove a great boon. In bringing out this new edition, however, the author has entirely recast the work; it is no longer an alphabetical arrangement of the genera, but the arrangement is according to the sequence of the natural orders of plants, and it is illustrated with numerous wood-cuts of the plants.

Commencing with the *Ranunculaceæ*, we have the *Berberidæ*, the *Nymphæaceæ*, the *Papaveraceæ*, the *Fumariaceæ*, the *Crucifereæ*, the *Resedaceæ*, the *Cistineæ*, the *Violareæ*, the *Polygalaceæ*, the *Caryophyllaceæ*, the *Tamaricineæ*, the *Hypericineæ*, the *Linaceæ*, the *Malvaceæ*, the *Tiliaceæ*, the *Geraniaceæ*, the *Rutaceæ*, the *Sapindaceæ*, the *Ampelidæ*, the *Terebinthaceæ*, the *Rhamnaceæ*, the *Papilionaceæ*, the *Rosaceæ*, the *Onagraceæ*, the *Lythrareæ*, the *Cucurbitaceæ*, the *Crassulaceæ*, the *Ribesiaceæ*, the *Saxifragæ*, and the *Umbellifereæ*, which are only partially included in the part before us.

There is no doubt that this edition is a vast improvement on the original one and the subsequent French translation; and it may now, indeed, be a matter for consideration with the Ray Society whether the proposed English translation, for which illustrated wood-cuts, as in the new German edition, had never been contemplated, will really be needed.

Obituary.

George Robert Gray, F.R.S., &c.—Visitors to the Officers' studies in the Zoological department of the British Museum will no longer have their dry researches enlivened by the cheerful chat and amiable jests of the courteous assistant-keeper; who, though *par excellence* an Ornithologist, had always a regard for Entomology and its students, and whose writings (nearly a score in number) upon insects of various orders entitle him to more than honorable mention here. Although not precisely the first in date of his entomological publications, the descriptions of new genera and species of insects by him in Griffiths' edition of Cuvier's Animal Kingdom, 1832 (Vols. xiv and xv), are perhaps best known to English readers, though scarcely written in orthodox scientific fashion. The *Phasmidæ*, especially those of Australia, received considerable attention from him (including a monograph of the typical

genus), and two, at least, of the well-known Museum Catalogues of *Lepidoptera* (*Papilionidæ*) are his work: we may also mention a more interesting and now rare volume from his pen, viz., Notices of Insects that form the bases of fungoid parasites.

Mr. Gray was the son of Mr. Samuel F. Gray, himself a writer on various branches of natural science: he was born at Little Chelsea, near London, on the 8th July, 1808, and was educated at the Merchant Tailors' School. Having become acquainted with that well-known naturalist, Mr. J. G. Children, whose cabinet of insects he arranged, Mr. Gray was, in 1831, appointed, through that gentleman's influence, an assistant in the British Museum, in which Institution he remained until his death, having risen through the usual grades to the position of assistant-keeper under his brother, Dr. J. E. Gray, and having become a member of various scientific societies, culminating in the Royal Society. After a sudden and short illness, during which he was insensible for quite a week, Mr. Gray died from paralysis of the brain on the night of Monday, the 6th ult. He leaves a widow, but no issue.

ENTOMOLOGICAL SOCIETY OF LONDON, 6th May, 1872.—H. T. STANTON, Esq., F.R.S., Vice-President, in the Chair.

Lieut. H. Murray, 104th Fusiliers, was elected a Member, and J. E. Mason, Esq., of Alford, a Subscriber.

Mr. E. Saunders exhibited a series of species of Australian *Buprestidæ*, illustrating the sexual differences existing in insects of that group.

Mr. F. Smith exhibited a large collection of *Hymenoptera*, chiefly *Aculeata*, sent from Japan by Mr. G. Lewis. Several of them appeared to be identical with British species, and the genera were all represented in Europe, save one genus of ants. There were also six species of *Tenthredinidæ* pertaining to the genus *Hylo-toma*, and a species of *Sirex* closely allied to *S. gigas*, but apparently differing in the constricted base of the abdomen.

Mr. Verrall exhibited an example of *Syrphus lasiophthalmus* with a peculiar malformation of two of the tibiæ, which appeared as though they had been broken and badly united afterwards. He attributed this to some injury received when the insect had just emerged from the puparium, and when the parts were of soft consistence.

Mr. Stainton exhibited an aspen leaf sent by Lord Walsingham from Oregon (see the cover of the 'Entomologist's Annual' for 1872), pierced by a multitude of small oval holes, caused by mining micro-lepidopterous larvæ of the genus *Aspidisca*, which cut out oval cases when fully fed. He also exhibited living and dead specimens of the moth, which greatly resembled *Cemistoma scitella*, but differed structurally in wanting the eye-caps.

Mr. E. Saunders read 'Descriptions of twenty new species of *Buprestidæ*.'

Mr. H. W. Bates read a Memoir on the Longicorn *Coleoptera* of Chontales, Nicaragua, embodying the results of the researches of Mr. Thomas Belt, in so far as regarded the family under consideration. Mr. Belt's collection contained about 250 species of Longicorns, of which 133 were peculiar to the district. Mr. Bates considered that an analysis of the collection elicited two general facts of much interest: first, the homogeneity of the type of the insect-fauna of the forest region of tropical America, extending probably over 45 degrees of latitude; and, secondly, the existence of a distinct northern element, the metropolis of which is Central America.

ON THE BRITISH TORTRICES OF THE GENERA *DICRORAMPHA* AND *ENDOPISA*, AS RESTRICTED BY WILKINSON.

BY CHAS. G. BARRETT.

Although widely separated in Wilkinson's work on the British Tortrices, some of the species in these two genera are so intimately allied in general appearance, that it is useless to attempt to clear up the difficulty which envelopes them, without taking both together. It is hardly necessary to add, that in Mr. Doubleday's list, and in that of Dr. Wocke, in Staudinger's Catalogue, these species are arranged quite differently.

Dicrorampha Petiverella, L.—Sufficiently described by Wilkinson. A well known and abundant species.

D. flavidorsana, Knaggs.—Described by Dr. Knaggs, E. M. M., January, 1867, and in the Ent. Annual for 1867, where it is also figured. Of this species Professor Zeller writes that—"it is a variety of *Petiverella*, and flies with it." With great reluctance, I am compelled to agree with him. A careful examination shows no distinctive marking which is not partaken of by *Petiverella*, nor any line which can be satisfactorily drawn between their variations; neither does it show any peculiar habits nor special habitats. The place in which I took the original specimens produced no more, and the other captures seem to be equally casual.

D. sequana, Hüb.—A very distinct species, sufficiently well described.

D. politana, Hüb.—This species is sunk into a synonym of *alpinana*, Tr., by Dr. Wocke, in Staud. Cat.,—not even recorded as a variety. Prof. Zeller suggests that both may be only forms of *Petiverella*; he says—"they all fly together, and are united by insensible passages." In this country this is not the case, *Petiverella* occurs everywhere, and therefore accompanies the other species in their localities; but *politana* is local, and not to be found in many parts of the country, but swarms wherever it occurs: moreover, its characters are sufficiently distinctive—fore-wings long and narrow, dorsal blotch very oblique, much more so than in *Petiverella*, its anterior margin straight, consequently appearing to be produced along the dorsal margin of the wing. Costal streaks numerous and very short.

D. alpinana, Tr.—Fore-wings much broader than in *politana*, dull olive-brown, costal streaks few and indistinct, dorsal blotch broad, only slightly oblique, with curved anterior margin.

The remaining species may be generally characterized as dark brown, irrorated with yellow scales, having a more or less distinct dorsal blotch, beyond it lustrous lines proceeding from the costal streaks, and a row of black dots before the hind margin.

D. simpliciana, Haw. (*caliginosana*, Tr.).—The largest species in the genus, and easily separable by the *breadth of its wings*. Dorsal blotch triangular, with its apex pointing towards the hind margin, divided from base to apex by a dark line, and *anteriorly distinctly dark margined*. Yellow scales large, not abundant. Lustrous lines leaden, broad and distinct, especially in the female, which has but few of the yellow scales.

D. tanaceti, Stn. (*saturnana*, Heinemann).—Nearly as large as *simpliciana*. Yellow scales *small, exceedingly abundant*, placed in short lines, and giving the wing a *golden appearance*. Leaden lines narrow and dull. Dorsal blotch *not triangular*, but rather in the form of a head and shoulders, or of a round loaf with a broad base, being *constricted above the middle of the wing*. In the female this is nearly obsolete.

The only British specimens I have seen were from Mr. McLachlan, and were bred by Mr. D'Orville from tansy. These agree with continental specimens of Heinemann's *saturnana*. Zeller says—"It flies in May among tansy."

Dr. Wocke (in Staud. Cat.) sinks the name *tanaceti* into a synonym of *plumbagana*, Tr., a smaller species, but he gives *saturnana*, Hein., as a distinct species in another sub-genus, and synonymous with another totally distinct species, *saturnana*, Gn., Wilk., Stn.

D. plumbagana, Tr.—Smaller, and having narrower fore-wings than the two preceding species, readily recognisable by its *bright lustrous lines*. Yellow scales large, arranged in irregular lines. Blotch *nearly upright, very irregular in form, not triangular, but dilated at the apex*, and divided by two delicate, dark, upright lines. Costal streaks bright silvery, not crossing the wing, *but the pair over the blotch sometimes unite with an irregular silver-edged patch above the anal angle*.

Dr. Wocke (in Staud. Cat.) seems to have got into a serious confusion with regard to this species also: *plumbagana*, Tr., he quotes as a good species (No. 1283), making it, however, synonymous with *tanaceti*, Stn., but *plumbagana* of Wilkinson he quotes (with a ?) as a synonym of the previous species, *distinctana*, Hein., and again afterwards (with another query) as synonymous with *subsequana*, Haw. and

Wood!! Haworth's *subsequana* is now well known to have been *pygmaæana*, Hübner (No. 1240 of Wocke); while Wood's *subsequana* is *Pamplusia monticolana* (which is Wocke's No. 1243).

It seems, therefore, not improbable that these three supposed species (Nos. 1282, -3, and -4) may all be referable to *plumbagana*, Treitschke, although some of the synonyms belong elsewhere.

M. Jourdheuille, in his Micro-Lepidopterist's Calendar, states that the larva of this species feeds in roots of *Achillea millefolium*.

D. senectana, Gn.—Introduced in Mr. Doubleday's list, but without description. Called by Wilkinson the ♀ of his *saturnana*, from which it is very distinct.

Described by Guenée—"Allied to *ulicana* (*i. e.* *plumbana*), but "larger and paler, wings of the same form as *caliginosana* (*simpliciana*), "cinereous, irrorated with very numerous yellowish scales, in fact, "almost covered with them, nearly immaculate. The dorsal patch and "marginal spots scarcely visible. Costa with lead-coloured strigulæ. "Posterior wings cinereous. Palpi elongated as in *ulicana*."

This description is excellent. The insect appears to be light brown, from the almost total absence of leaden lines and the abundance of yellow scales. Alar. exp. 7 lines.

Apparently a scarce species in this country. I have seen but two or three specimens, one of which is the type named by Guenée, and kindly lent me by Mr. Doubleday.

D. herbosana, n. sp.

♂. Head and antennæ pale brown. Palpi whitish, tip brown. Thorax pale brown. Fore-wings with the costa rather arched and the apex pointed, rich brown, with numerous small bright yellow scales, arranged in short irregular lines, not very close together, but allowing the ground colour to appear. Dorsal blotch triangular, oblique, pointed at the apex, pale brown, *darkly margined on both sides*, and enclosing several faint brown lines on its base. Costal streaks short and indistinct, pale silvery. Above the anal angle, and parallel with the hinder margin of the dorsal blotch, is a long, narrow, irregular space, margined with a silvery line. Two or three of the usual black dots are barely visible at the hind margin. Cilia shining, pale yellowish. Hind-wings whitish, tinged with grey.

♀. Darker, especially on both sides of the *sharply defined and pointed blotch*, and with fewer yellow scales. Hind-wings brown.

Alar. exp. 7 lines.

Readily distinguished from the allied species by its pointed wings and distinct, oblique, pointed dorsal blotch, in which respects it is closely allied to *acuminatana*.

Five specimens have been kindly entrusted to me by the Rev. H. Burney and by Mr. J. Sang, who takes them on grassy slopes near Darlington. Also taken on a canal bank near Saltwick, Lancashire, by Mr. Hodgkinson.

D. acuminatana, Zeller.—Readily distinguished from the last-named species by its purplish tinge, arising from the numerous purple scales arranged in lines over the whole of the fore-wings, and from the other allied species also by its acutely pointed fore-wings and oblique dorsal blotch. In continental examples the ground colour is sometimes very pale, throwing up the purple scales to great advantage.

D. consortana, Steph., Wilk.—Wilkinson's description of this species is excellent. It may be distinguished from the allied species by its small size, very few yellow scales on a dark brown ground, numerous black dashes on the fore-wings, especially along the fold, and its very narrow, divided, and sinuated dorsal blotch, which is produced towards the apex of the wing. Costal streaks bright, short, and nearly perpendicular to the margin.

Singularly enough, this species occurs of two different sizes, one nearly as large as the male of *D. acuminatana*, the other much smaller; and so constant are they as to suggest the idea of distinct species, but a careful examination under a good magnifier of males of both forms, seems to detect no other distinctions.

A small continental species, having the dorsal blotch whitish, has been supposed to be identical with this, but I think it not distinct from *agilana*, Tengström, Heinemann. It seems to me in form more closely allied to *sequana* than to *consortana*. I have not as yet seen a British specimen anything like it.

Endopisa saturnana, Gn., Wilk.—Wilkinson separates this and the next species from the *Dicroramphæ* on account of the absence of the costal fold in the male. In other respects they are extremely closely allied. This name has been usually applied in cabinets, in this country, to the next species, *plumbana* (this being called *ulicana*), but Guenée's and Wilkinson's descriptions, as well as Guenée's labelled types, kindly lent me by Mr. Doubleday, prove this to be an error. They are exceedingly difficult to separate, unless very fine, and this species in particular is most difficult to characterize. Its ground

colour is brown, but almost entirely concealed by *small pale yellow scales with whitish bases, arranged in short, straight lines*, very close together, and with extreme neatness. *Dorsal blotch hardly visible, in fact, generally obsolete*, and the wing is crossed in succession from near the base to the hind margin, by obscure, silvery-grey, angulated lines, originating in the costal streaks. The three apical streaks, however, unite together near the costa, and do not cross the wing. ♀ very similar, hind-wings rather darker.

Exceedingly local. Taken by Mr. Bond, I believe, on chalk downs, but apparently in very few collections. Prof. Zeller, to whom specimens have been submitted, says it is quite unknown to him.

E. plumbana, Scopoli (*ulicana*, Gn., Wilk.).—Fore-wings dark brown. Yellow scales larger, more ochreous, and not arranged so closely or regularly as in *saturnana* (consequently this is a darker insect). Dorsal blotch rather paler than the ground colour, its anterior edge oblique, posterior edge nearly upright. Wing crossed by two or three leaden lines beyond the middle, but sometimes these are nearly obsolete. ♀ darker (iron-grey with an olive tinge), very few yellow scales, but the leaden lines broad and distinct. Costa rounded. Very different to the male.

This is the commonest species of the group, and seems to occur in grassy places almost everywhere. It may even be found flying in the afternoon along grassy banks by road sides.

Dr. Wocke (in Staud. Cat.) correctly sinks *ulicana*, Gn., into a synonym of *plumbana*, Scop. The *Dicrorampha plumbana* recorded as British in the Ent. Annual for 1870, and taken in the north by Mr. Hodgkinson, is merely the female of this species. It is sluggish in its habits, and most easily obtained by sweeping the grass in the afternoon when the male is flying.

From Mr. Wilkinson's remarks after his description of *Endopisa saturnana* (p. 228), it seems evident that he had not even then any clear idea of the species, as distinguished from its allies, and therefore I suspect that his localities for that species and his *ulicana* may not all be reliable. It is, therefore, very desirable that a record should be obtained of the localities in which these and the more obscure *Dicroramphæ* are found, so as to get a better idea of their habits and distribution in this country.

The remaining species of the genus *Endopisa* may readily be recognized by their uniform glossy appearance, arising from the absence of the yellow scales and of the dorsal blotch.

E. roseticolana, Zeller. (*Germanana*, Wilk., Doubl., non Hüb.)—Easily recognizable by its dark purple-brown, almost immaculate fore-wings, and slightly rounded costa. Under a lens the ocellus above the anal angle becomes slightly visible, containing four faint black streaks, and edged behind with blue. The costa, also, has a few distant, faint whitish streaks.

Found among wild rose, the larva feeding in the hips.

The name *Germanana*, Hübner, has been applied by mistake to this species. *Atropurpurana* and *proximana* of Haworth and Stephens, quoted in Mr. Doubleday's list as synonyms, do not seem to refer to it, since the former is described as having *white cilia*, whilst the latter seems to agree best with *pisana*, Gn. Its identity with *roseticolana* is affirmed by Prof. Zeller himself, and his description applies most accurately to it. It is worthy of remark, however, that an allied species with broader wings and costa nearly straight has been sent to Mr. Doubleday by Dr. Staudinger under this name. It is dull, dark, purplish-brown, with a few yellowish scales and white costal streaks. It does not seem to have been found in this country.

Dr. Wocke (in Staud. Cat.) seems to have overlooked Wilkinson's description of this species entirely.

E. nigricana, Steph. (*tenebrosana*, Dup., *pisana*, Gn., Doubl., *proximana*, Wilk., *nebritana*, Wilk., Doubl., non Treitschke).—The common pea-feeding species, readily known by its glossy fore-wings, brownish or drab with an olive tinge, and the distinct yellow or whitish costal streaks. Specimens of the supposed two species (*nigricana* and *proximana*, Wilk.) having been submitted to Prof. Zeller, he wrote—"That he considered them to belong to one variable species, *tenebrosana*, Dup." He also, with his usual kindness, sent specimens of the true *nebritana*, Tr., from Austria, a species which hardly occurs in northern Germany. These are larger and rather darker, and have the third costal gemination produced to the ocellus, where it makes a sudden bend and forms a perpendicular, bright golden line down the inner margin of the ocellus. A similar straight golden line bounds it exteriorly, and the fifth costal streak is not continued to the cilia as in our species.

I can find no evidence to contradict Prof. Zeller's opinion. Wilkinson's descriptions of the larvæ of the two supposed species are practically identical, and Mr. Bond, Mr. Machin, and others, who have taken and bred them, agree with me that they have no reliable point of distinction, both forms being taken together. Mr. Doubleday,

however, tells me that he once saw thousands of *pisana* in a field in which peas had been grown the year before, and that there was not one so dark as Haworth's *nigricana* among them; the question may, therefore, still be considered open for further investigation.

One thing, however, is very certain, that so far from being scarce in the perfect state, as Wilkinson affirms, they are exceedingly abundant on the sunny side of hedges adjoining the previous year's pea fields, and at the edges of woods where *Orobus* and other vetches are common.

Dr. Wocke (in Staud. Cat.) sinks *proximana*, Wilk., as a synonym of *tenebrosana*, Dup., making *nigricana*, Steph., and *pisana*, Gn., synonymous with the next species, *nebritana*, Tr. As this is an error, *proximana*, *nigricana*, and *pisana* being all synonymous with *tenebrosana*, Dup., this last name will have to be dropped in favour of *nigricana*, Steph., which has the priority.

E. Germarana, Hüb. (*puncticostana*, Steph., Wilk., Doubl.).—A small species, recognizable at once by its yellow face and palpi, and by the narrow, shining, blackish-brown fore-wings, with numerous short yellow costal streaks.

Dr. Wocke (in Staud. Cat.) calls this *Germmana*, quoting Hübner's first name, which seems to have been accidentally thus printed; but as Hübner afterwards corrected it himself, it seems an abuse of the law of priority to insist on retaining it instead of *Germarana*. Wocke quotes *atropurpurana* of Haworth and Stephens, as well as *immaculana*, Gn., as synonyms of this species.

Before quitting this group, it may be as well to refer to one more species which is exceedingly apt to be mistaken for a *Dicrorampha*, viz., *Grapholita ulicetana*, of which, small dark examples are constantly to be found mixed with them in collections. This may, however, nearly always be distinguished by the large brownish-grey ocellus which occupies nearly the whole of the apical third of the fore-wing, and contains several black lines.

Norwich: 10th May, 1872.

A NEW GENUS AND SPECIES OF COLEOPTERA ALLIED TO MELOË.

BY CHAS. O. WATERHOUSE.

MELOËTYPHLUS, GEN. NOV.

Mentum small, transverse, rounded at the sides, bi-impressed; apical joint of the labial palpi short, ovate, that of the maxillary palpi compressed, slightly acuminate, truncate at the apex; mandibles bent

almost at right angles in the middle, acuminate at the apex; labrum small, transverse, rounded at the sides and in front, impressed in the centre. Head very large, nearly as wide as the elytra at their greatest width, transverse, rounded at the sides, emarginate posteriorly, with a deep longitudinal impression from the neck to the anterior margin, almost dividing the head into two spheres. Antennæ very short, about three-quarters the length of the head, the basal joint largest; the second short, transverse; the third to ninth joints very slightly transverse, sub-equal, the tenth joint a little longer, the eleventh a little longer and acuminate.* Eyes none.

Thorax moderately convex, a little more than half the width of the head, slightly narrowed behind, obliquely truncate on each side in front, faintly longitudinally impressed on the disc.

Scutellum moderate in size, triangular, rounded at the apex.

Elytra covering the abdomen only in part, overlapping each other, inner margin parabolically rounded, their epipleuræ covering the meso- and meta-thoracic parapleuræ.

Legs strong, short; intermediate and posterior coxæ contiguous, femora slightly compressed; tibiæ much compressed, concave on both surfaces, the apical spurs to all the tibiæ short and acuminate; tarsi short, thick, three-sided, each joint with a somewhat deep impression on its two outer sides, the third or under-side of the basal four joints (basal three to posterior tarsi) spongy; the first to penultimate joints decreasing in size, the claw-joint when seen from above appears contracted at the base, when seen sideways is slightly acuminate and obliquely truncate at the apex; claws short, fissile nearly to the base, the under and upper divisions of equal length.

MELOËTYPHLUS FUSCATUS, sp. n.

Fusco-testaceus, nitidus, ore, antennis, pedibusque fuscis, capite magno, convexo, in medio canaliculato, subtiliter punctulato, fronte transversim impresso. Oculis nullis. Thorace capite fere duplo angustiori, transverso, fere lævi. Scutello fusco-nigro, subtiliter punctulato. Elytris sat brevibus, convexis, singulis introrsum et ad apicem leviter rotundatis; supra subtiliter et irregulariter punctulatis, singulis lineâ obsoletâ a basi fere ad apicem notatis. Pedibus fuscis, subtilissime pubescentibus et punctulatis, tibiarum tarsorumque foveis lævibus.

Long. 7 lin. (sine abdomine 6½ lin.): capitis lat. 3½ lin.

Habitat: Pebas, E. Peru. *In coll.* E. W. Janson.

British Museum:

May 22nd, 1872.

* One of the antennæ has the apical joint apparently deformed, this joint being transverse and rounded at the apex.—C. O. W.

Notes on the Coleoptera of Slapton, with description of a new species of Scoporus.

—Having recently been deluded by a sudden outburst of fine weather into visiting Slapton, a few notes on the very moderate amount of success which we obtained during our five days' sojourn at the Sands Hotel may not be altogether uninteresting; and I have compiled them with the greater pleasure, inasmuch as the locality (however haunted by fishermen) is but little known to Coleopterists, and it is now exactly twenty years since I first made its acquaintance,—giving the result of my *then* experience in the September number of the 'Zoologist' for 1852. Although I have on several occasions since that period re-visited Slapton, I must confess that the low estimate which I originally formed (and placed upon record) of its productiveness has not been materially altered. Each time a few additional species have undoubtedly presented themselves, which could not but tend to raise its character as a collecting-station for the entomologist; but, still, the list which it has gradually supplied seems to me to fall very far short of what (to say the least) its exceedingly promising appearance and remote southern position would have led one to anticipate.

Our late expedition was perhaps more successful than any of my previous ones; and yet, in reality, the reverse ought to have been the case,—for not only was the time of our arrival there (May 2nd) full early for a region thus exceptionally bleak and exposed, but (alas!) the weather, which appeared so full of hope on our departure from Teignmouth, commenced to change by the time that we had reached the Ley, and became worse each day that we were there; so that it was next to impossible to do anything, and we were fairly driven home again at last by the inhospitality of the elements. It was on this account that I failed almost to *look* for the main species for which we went,—namely, the little *Hydroporus minutissimus*, which was detected there by my wife three years ago (*vide* Ent. Mon. Mag., vi, p. 57), and which we afterwards met with in considerable numbers; for the waters of the lake were so cold and turbulent (having been lashed into a thick fringe of white froth, along its edges, by a bitter N.W. wind) that there seemed literally no place for a sun-loving diver, whose proper habitat is among the warm shingle of the calm, shallow pools, which have been shaped-out by the inequalities of the shore. Yet, in spite of this, I just managed to ascertain, though with some amount of real difficulty, that it still tenants its old haunts, by capturing *two* individuals.

It would be waste of time to enumerate *in extenso* the common species of the district: suffice it to remark that they would for the most part arrange themselves under three tolerably distinct heads,—namely, those found in the water (which I have reason to think are not numerous), those peculiar to the shingle (decidedly the most characteristic members of the fauna), and those from the swampy lands and edges of the lake (*removed* from the long, shingly side, or barrier, which separates the latter from the sea), where *mud* (emphatically so called) and marsh-plants may be said to constitute the prevailing feature.

(1). Of the *Hydradephaga* (and, still less, of the *Philhydrida*) I will not now speak, the species which I have ever been able to obtain being, with the exception of *Hydroporus minutissimus*, of the very commonest description. Indeed, the two which appear more particularly to abound, are the universal *Noterus semipunctatus* and a *Laccophilus*; whilst even such plebian insects as the *Hyphydrus ferrugineus*, the *Hydroporus inæqualis*, *depressus*, and *palustris*, and the *Ilybius fuliginosus*, although occurring, are not by any means the pests that one might, from analogy, have been led to suppose.

(2). The shingle-collecting is more interesting,—the long, gently sloping banks of sea gravel which fringe the *outer* margin of the lake (parallel to the beach), for a distance of at least three miles, at all times repaying a careful investigation. It is there that the small and fragile *Homalota longula* congregates at the water's edge; though it runs with such amazing rapidity, and is so liable to be puffed off (when captured) by every breath of wind, that it is more easily seen than secured. And in spots only one degree less wet, that nimble little Elaterid the *Cryptohypnus dermestoides* (particularly the “var. *tetragraphus*”), forms quite a lively feature in nearly every handful of stones. Darting quickly also about this long shingly slope, or freshwater shore, the elegant *Lionychus quadrillum* is often extremely abundant, but we were rather too early for it during our late trip; and should a dead bird, or a fish, be found lying in this precise locality, there, almost for certain, the handsome *Dermestes undulatus* will be found to be keeping high festival in surprising numbers. Adhering to the under-sides of the larger and drier stones, further removed from the Ley, and nearer to the road which leads to Torcross, we obtained, by much labour, a tolerable series of the rare *Sydæmus pusillus* (16 of which were males, and 34 females), accompanied by the *Corticaria crenulata* and a few examples of a *Cephennium*, which I at first thought must be altogether new, but which I now believe (in conjunction with Mr. Rye) represents only a rather small and reddish state of the *C. thoracicum*. Here, on a former occasion, I have taken *Carcinops minimus* and *Apion confluentis*; and here I likewise met with a single specimen of the *Lithocharis ripicola* of Kraatz, but we totally failed to obtain it again. And the same might be said of the *Harpalus tenebrosus*,—though its companion and near ally, the universal *H. attenuatus*, was quite as abundant this spring as is usually the case. However, by far the most important of our captures in this exact shingly spot remains yet to be noticed, and consists of a very narrow and minute *Scopæus* which we found, very sparingly, clinging, like the *Sydæmus*, *Cephennium*, and *Corticaria*, to the under-sides of the drier stones. While visiting Slapton three years ago, I met with four individuals of this *Scopæus*; but, having no leisure on our return home to examine my captures critically, and as they were evidently not the common *S. minutus* (*sulcicollis*, St.), I put them aside as probably referable to *S. Ericksoni*, the only other recorded British species of the genus; and it was not until we had secured five more, during our recent campaign, that I determined on looking at them with greater care, and comparing them with types of the latter. The first inspection showed at once that they were totally distinct; and as they certainly do not quadrate with any species to the description of which I have access, and since it is equally the opinion of Mr. Rye that they may represent, in all probability, an undefined member of the genus, I have compiled the following short diagnosis,—proposing for the species the title of *Ryei*.

SCOPEUS RYEI, n. sp.

S. angustissimus, *linearis*, *subdepressus*, *subopacus*, *pallide rufo-brunneus* (abdomine vix obscuriore), *antennis*, *palpis pedibusque infusate testaceis*, *subtilissime densissimeque punctulatus*, *et pube minutâ cinerea crebre vestitus*; *prothorace oblongo*, *tenuissime vix canaliculato*; *elytris prothorace vix longioribus*; *pedibus subgracilibus ac (præsertim tarsis) breviusculis*.

Long. corp. lin. vix. 1½.

Habitat sub lapidibus in aridis juxta mare; ad Slapton in agro Devonensi maritimo, Maio incunte A. D. 1869 et 1872, parce lectus.

Readily known from the *S. minutus* not only by its smaller size and still narrower outline, but likewise by its paler, or more reddish-brown, hue, and its more opaque surface,—which is more closely and finely punctulated, and more densely clothed with a delicate cinereous pubescence. Its abdominal segments also are less divided *inter se* than is the case with those of *S. minutus*, and its legs are thinner and less developed,—the feet especially being somewhat shorter.

(3). I will now consider the third category to which I have called attention,—namely, the species which inhabit the adjoining swampy lands, and the muddy edges of the lake which are in the *opposite* direction from the sea (and which have a more decidedly marshy character, *not* being composed of that thick bed of sloping shingle which gives so unmistakeable a feature to the long narrow ridge which separates the latter, on its south-eastern side, from the beach). Here sedge and bullrushes reign supreme, and various marsh plants grow in rank luxuriance. Yet, despite the multitudes of *Coleoptera* which tenant the decaying detritus, and which are chiefly to be obtained by treading-out the mud beneath, the species for the most part are of a very ordinary description. Those which at once attract the eye, as more particularly conspicuous, are the common *Elaphrus cupreus*, *Blethisa multipunctata*, *Chlœnius vestitus*, and *Anchomenus marginatus*; and less abundantly the *A. viduus* (with its variety *mæstus*), and the *A. piceus*. In far greater profusion, however, than any of these, are the *Bembidium assimile* and various ordinary *Brachelytra*,—such as the *Philonthus micans* and *quisquiliarius* (along with its “var. *rubidus*”), the *P. nigritulus*, and the *Stenus Juno*, *cicindeloides*, *plantaris*, and *canaliculatus*. More sparingly, three brightly-coloured *Pœderi* are very showy,—namely, the *littoralis*, *riparius*, and *fuscipes*; and it is remarkable that the last of them, which Mr. Rye informs me is usually looked upon as scarce, appears (though not exactly abundant) to be the commonest of them at Slapton. The *Tachyusa atra* and *Homalota graminicola*, with the “var. *pseudo-cœrulea*” of the *labilis*, the *Xantholinus longicentris*, *Lathrobium quadratum*, and the *Philonthus laminatus*, though pretty general, are somewhat less obtrusive; and beneath the occasional heaps of rotten sedge the little *Atomaria mesomelas* and *Bryaxis sanguinea* may be seen oftentimes in swarms. I may remark that only one ♂ of the latter was observed amongst countless females. But what I regard as our best capture in this particular spot is the rare *Philonthus punctus*, of which we obtained a fine series by treading the mud on the northern (or perhaps, more strictly, the north-eastern) side of the Ley. During a former visit to Slapton, I met with a single example only of this well-marked species, and it was not until now that we succeeded in tracking it to its precise quarters.

I will not occupy space, however, by adding more, but will merely observe that the various marsh plants behind, and adjoining, the Ley, harbour most of the ordinary *Coleoptera* of such localities,—as, for instance, the *Telmatophilus caricis*, the *Phytobius notula* and *leucogaster*, and the *Ceuthorhynchus melanostictus*. In an old tree, scarcely removed from the hinder margin of the lake, I observed, amongst the ravages of *Synodendron cylindricum* and *Phlæophagus æneopiceus*, the dead remains of *Mesites Tardii*,—an insect which is widely spread over, and eminently characteristic of, the south-western districts of England and Ireland (in the *former* of which it was first detected by myself, at Mount Edgecumbe, during May, 1844: *vide* ‘Zoologist,’ ii, p. 702), but which has been met with likewise, more recently, in other parts of the country.—T. V. WOLLASTON, Teignmouth: *June 8th*, 1872.

Notes on British Coleoptera, including three species new to our list.—

ILYBIUS ÆNESCENS, Thoms., Opusc. Ent., 125.—According to Dr. Kraatz (Berlin. ent. Zeitschr., xv, p. 166), there is an English example of this species in the late Dr. Schaum's collection. It is closely allied to *I. angustior*, but is usually somewhat smaller, with less metallic reflections, and has its antennæ uniformly ferruginous, instead of pitchy at the apex. *I. guttiger* is distinguished from it by being decidedly larger and blacker, with more evident rows of punctures on the elytra. All my supposed *angustior* are to be referred to *ænescens*.

HYDROPHORUS ELONGATULUS, Sturm.—My friend, Mr. T. J. Bold, in the 'Natural History Transactions of Northumberland and Durham,' vol. iv (1872), p. 376, demurs to my statement in Ent. Ann., 1872, p. 138, that this species, introduced by him (Ent. Mo. Mag., iv, p. 283), was "erroneously identified;" remarking that I had not seen his specimen, nor had any description of it. Passing over the latter six words, as irreconcilable with the concise and accurate account of the insect given by Mr. Bold himself (*l. c.*), I wish most emphatically to apologise to him for my wrong doing, and for which, the result of a misconception on my part, my sole excuse is that *H. elongatulus* was omitted by Dr. Sharp (who was, according to my belief, in communication with Mr. Bold) from his recent Catalogue.

Mr. Bold, however, informs me that Dr. Sharp did not see this specimen until after the appearance of the 'Annual' above mentioned, and that, in the opinion of the latter, the insect is "half-way between *tristis* and *elongatulus*, and it would not be safe to introduce the species on that specimen alone."

HOMALOTA HEPATICA, Er.—A note on the occurrence during the past spring of various single specimens of this hitherto rare British species may not be altogether uninteresting. Mr. E. A. Waterhouse (whom the insect would appear to follow, judging from former records by him in this Magazine), has recently twice caught individuals near Hampstead, in the public road, on the wing, and has swept up another from grass under a tree in the same locality. Mr. Waterhouse has also taken another example at Darenth, by sweeping blue-bells (this being the method by which he formerly captured other specimens at Ripon). Mr. Champion has taken four sporadic examples at Caterham, Shirley (in moss), and Chatham; I observed amongst some other *Brachelytra* an enormous specimen of it, taken fortuitously by the Rev. T. Blackburn near Greenhithe; and I have myself just "fluked" a fine ♂, when beating willows for *Erikinus* on Wimbledon Common. I have taken the species formerly by sifting dead leaves at Coombe Wood, and some of Mr. E. A. Waterhouse's former captures were made in birds'-nests in London: but the true habitat of the species seems yet to be found. Mr. E. W. Janson used, I believe, occasionally to find it crawling on fences near Highgate.

OCYPUS MORIO, Auct.—The few British specimens (some 12 in number) which I happen to have retained as representing this common species in my cabinet seem divisible into two different races, of which, the larger has proportionably longer antennæ and tarsi (the latter members being also lighter in colour), a wider head, and the thorax slightly narrowed behind. This appears to be the type of all authors. A vague latitude as to width of head and other trifling characters (not, however, as to those above mentioned) is allowed by the standard writers on *Brachelytra*;—

none of whom, however, appear to have recognised the union of so many divergencies from the type in a smaller race, though they admit a great variation in size by the measurements given. My smaller individuals, in which the tarsi are shorter and dark, the joints of the antennæ evidently shorter in proportion (the whole antenna in some instances being very much abbreviated), the head is longer and not so wide (not a ♀ character, as I have ♂ showing this peculiarity), with a more evident smooth medial longitudinal linear space, and the thorax is quite parallel-sided, appear in some respects to come very close to *O. luganensis*, Heer, dubiously considered as distinct from *morio* by its author; but Heer states the punctuation of the head of this insect to be more delicate, and the thorax to have no medial longitudinal line, characters not appearing in my smaller race, of which, moreover, the Swiss author omits the other and more important differences. *Luganensis* is now referred to *O. cerdo*, Er., with which these smaller *morio* do not accord. In any of the smaller *Brachelytra*, it seems to me that such discrepancies as those above mentioned would, if constant, stand a very good chance of being accepted as of specific value. I make the above remarks with the idea of directing attention to the subject, so as to discover if other Coleopterists find these differences in their specimens.

MELIGETHES MARRUBII, Ch. Brisout.—Of this species, hitherto unique as British in Mr. G. R. Crotch's collection, I was so fortunate at the end of last month as to capture a single example, by casual sweeping, within a hundred yards of my own door. Further and diligent searchings for more have as yet been unsuccessful; perhaps because I fail to find any *Marrubium vulgare*. Sweeping the allied *Lamium album*, in blossom, has produced many *M. difficilis*, *memnonius*, and *flavipes*,—species never before observed by me so near London, probably from insufficient attention to their food-plant.

At the risk of being accused of undue repetition, but in the hope of causing other examples to be taken, I may observe that *M. marrubii* is most nearly allied to the somewhat rare *M. serripes*, but is more strongly and less closely punctured, the punctures being oblong, with a longer thorax, which is not nearly so strongly bisinuate at the base, and with the anterior tibiæ not evenly and rather finely serrate externally, but exhibiting two large and sharp teeth near the base, then two or three smaller, then a large tooth, and finally another small one at the apex.

MELIGETHES CORVINUS, Er.—I am glad to be able to fully corroborate this species as British. M. Brisout has returned me an example (belonging to Dr. Power) as certainly referable to it, and Mr. Champion has recently taken three specimens of it by sweeping at Caterham, and for one of which I am much indebted to him.

PHALACRUS HUMBERTII, Tournier.—M. Henri Tournier, of Geneva, who is engaged upon a monograph of *Olibrus* and *Phalacrus*, has already recognised as a good species under the above name the insect referred to in my recent description of *P. Brisouti* as a very small form of *P. corruscus*, and which appears to differ from the latter, apart from its size, in the stronger punctuation of its elytra and the club of its antennæ.

I have communicated my specimen to M. Tournier, with my type of *P. Brisouti*, which he confirms as a good and distinct species.

OLIBRUS PARTICEPS, Mulsant, Opusc. Ent. 61, 127.—M. Tournier refers to this species an English insect communicated to him by me, and which was given to me by Dr. Power as *O. affinis*; the latter is unknown to me as British, and would appear, in spite of the constant references to it as a common species on the continent, to be not abundant anywhere, as M. Tournier only possesses a very small number of it.

OLIBRUS BICOLOR, Fab.—This species, rejected by me from the Catalogue annexed to my 'British Beetles,' is again in our lists. As far as my own knowledge goes, I may observe that large and brightly-colored specimens, representing the *bicolor* var. *flavicornis* of Mr. Waterhouse's Catalogue, as well as much smaller and darker individuals, are (as anticipated) returned to me by M. Tournier as *O. liquidus*, Er.

CRYPTOPHAGUS RUFICORNIS, Steph.—Among some beetles sent to me for examination by that hard-working and successful collector, Mr. J. Ray Hardy, of Manchester (shortly before his starting on an entomological expedition to California, where he now is), were a few examples of the very rare *Cryptophagus ruficornis*, taken by him last year out of fungus (*Polyporus*) on dead birch trees, at Chat Moss. As Dr. Sharp has well observed to me, this species should be placed in the same section of its genus as *pilosus*, instead of being associated with *dentatus*, where it now stands in our Catalogues.

As it is apparently not known to continental entomologists, it may not be altogether useless if I were, from the material at my disposal, to give a brief diagnosis of it here; although, if only from its striking peculiarity of colour, Stephens' description seems sufficient for its recognition.

[Sectio '* Das Halsschild mit Schwielenhöckern,' Erichson.]

CRYPTOPHAGUS RUFICORNIS: *elongatus, subcylindricus, sat profunde minus dense punctatus, rufo-piceus, elytris (præter humeros maculamque apicalem indeterminatam dilutiores) nigro-piceis, antennis pedibusque rufo-ferrugineis; pube fulvescenti sub-erectâ sparsim vestitus; capite minore, antennarum clavâ, ut in C. setuloso, abruptius majore; prothorace sub-quadrato-transverso, basin versùs viâ angustato, lateribus bidentatis, dente anteriore prominulo posterius acuto, posteriore obtusiusculo ad medium sito, margine laterali incrassato, evidenter crenulato; elytris sat regulariter punctato-striatis.*

Long. corp. 1—1½ lin. (Anglic.).

Stephens, Ill. Mand., iii, p. 78; *id.*, Manual, p. 137.

This insect is about the size and build of average specimens of *C. dentatus*, from which it is at once removed by its thorax possessing four irregularly smooth disco-lateral callosities and an evident (though very delicate) carina in the middle of its transverse basal depression. These sectional characters, however, appear to me to be but various degrees of development of a structure belonging to the whole genus, and not to be trustworthy. But its color (suggestive, perhaps, of a mixture of that of *C. serratus* and *C. scanicus*), and its deep punctuation, which on the elytra is about of the same degree as that of the former of those species, but rather more disposed in striae, which are more closely packed, readily distinguish it from all of its genus known to me. The anterior denticle of its thorax is a trifle more projecting

and more acute behind than in *C. pilosus*, but the posterior denticle is broader and not so sharp, and the lateral margins more evidently crenulated than in that species: in general outline, this segment perhaps more resembles the thorax of *C. umbratus*.

Of species not as yet recorded as British, *C. dorsalis*, Sahlb., of which a color variety might possibly be supposed to resemble *C. ruficornis*, is readily distinguishable by its smaller size, finer and closer punctuation, more depressed build, sharper thoracic posterior denticle, &c.; and its ally, *C. niger*, Bris., though more nearly resembling *C. ruficornis* by being darker in color, with a stronger antennal club, and with its thorax straighter at the sides, seems abundantly distinct through its close and delicate punctuation, slight and obtuse anterior thoracic denticle, &c.

Baudi (Berlin. ent. Zeitschr., xiv, p. 56) has recorded a black var. of *C. pilosus* from Piedmont.

APHIDIUS NIGER, Panz.—Baron Von Harold (Berlin. ent. Zeitschr., xv, p. 266), noticing the universal confusion between the black forms of *A. plagiatus* and this species, which is much rarer than is supposed, only five specimens of it having come to his possession, remarks that it may be known by the basal joint of its posterior tarsi being longer than the upper apical spine (these are, when evenly flattened, of the same length in *plagiatus*), its metasternum being smooth in both sexes, and its invariably non-metallic color.

I think it probable that the insects on which this species has been recorded as British, and declared to be "abundant at Deal," are only immaculate and non-metallic forms of *plagiatus*; but I have never yet seen a supposed British exponent of *A. niger*.

ZEUGOPHORA RUFOTESTACEA.—The insect recently described in Berlin. ent. Zeitschr., xv, p. 162, under this name by Dr. Kraatz seems without doubt to be our well-known Scotch *Z. Turneri*, described by Dr. Power in the 'Zoologist' for 1863 (p. 8735), and subsequently more fully by myself in the 'Entomologist's Annual' for 1864, p. 70, on the frontispiece of which it is figured (f. 8). This has erroneously been considered a var. of *Z. scutellaris*.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: June, 1872.

Note on the food-plant of *Magdalinus carbonarius*.—When in Braemar last year, I discovered what I had been unable previously to ascertain, viz., that *M. carbonarius* in the larval state feeds upon the common birch. I found a decayed branch of this tree, about an inch and a-half in diameter, in which there were three mines close together. At the termination of each of these was the beetle—dead. The course of the larva had been between the bark and the wood, the latter of which was very irregularly, and rather deeply, engraved.—ROBT. HISLOP, Blair Bank, Falkirk: May, 1872.

Natural History of *Anchocelis litura*.—I owe my acquaintance with this species, as well as several others, to the great kindness of Mr. George Norman, of Forres, who sent me a batch of eggs on October 2nd, 1869; they were mostly laid thickly together in a flattish mass on a piece of paper, though there were some few loose and separate from each other: they began to hatch with Mr. Hellins at Exeter on the 5th of April, 1870; by the 22nd, the larvæ were $\frac{3}{4}$ -inch long; by May 15th they had

attained twice that length, and about the end of the month they, like mine, all went to earth: the moths appeared September 2nd—11th. With me, however, the eggs did not hatch before the 11th of April, 1870.

The shape of the egg is circular, but flattened, and greatly depressed in the centre, slightly ribbed and reticulated, having withal a shrivelled, empty appearance, as though its contents had been squeezed or dried out of it: the colour at first is pale yellow, soon after turning to a slightly pinkish leaden hue, and the shell is very glistening, in fact, the flat mass of eggs seemed smeared over with a coating of transparent varnish or gum, which I fancy would in nature attach them to some cover on the upper as well as the lower surface; I think they would be laid in cracks, or under loose bits of bark; as the time of hatching approached the colour seemed but very little heightened, and when the young larvæ had emerged from them, the empty shells looked brilliantly crystalline.

The newly-hatched larvæ were pinkish-grey in colour, with the dorsal vessel appearing as a dark grey, leaden stripe, the pale brown head large in proportion: within a fortnight they became of a dull flesh colour, after the second moult they were pale greyish-green, and soon turned darker, then showing the usual lines pale and distinct, their length being now three-eighths of an inch, and their figure proportionately stout; by the 6th of May they were five-eighths of an inch long, of a yellowish-green colour, the lines rather paler green, the tubercular dots exceedingly small and blackish; by the 15th, they were three-quarters of an inch long, of a pale yellow-green, the lines all present but unobtrusive; up to this time they had fed almost entirely on the common garden monthly rose, which they preferred from the first to all other food given them in great variety from time to time; but at this period they were tried with bramble, and, after tasting it, they no longer cared for rose, and thenceforward fed up chiefly on brambles of different species.

The full-grown larva was one inch and a half in length, moderately stout, cylindrical, and uniform in bulk, with tolerably well defined segmental divisions; the colour on the back and sides, as far as the spiracles, green, somewhat inclining to olive, and freckled with a little darker green, and, on this freckled surface, the dorsal and sub-dorsal lines could be distinctly traced, a little paler than the ground, but edged with interrupted, freckly, almost blackish, lines, which, in some instances, especially with the dorsal line, seemed almost to obscure the pale line they enclosed: the tubercular dots were also paler than the ground, and very finely ringed with darker green; the boundary of this green colouring along the side was completed by a black line, interrupted only where the spiracles (white, outlined with black) were placed upon it; immediately beneath the spiracles the contrast of whitish-yellow deepened a little by degrees into a pale yellowish-green, which was the colour of the belly and legs, these last were tipped with brownish: the head was brownish-green, freckled with darker; the second segment was not very different in texture from the rest of the body, it was in most examples edged in front with very dark brown, and the pale lines that appeared on it were without any dark edging: the whole brood presented scarcely the least variety, either in colouring or detail, but were as constant as possible in their uniformity.

Some of the larvæ, which were kept in a flower-pot with sand for soil, formed very neat, compact cocoons of silk, covered thinly but uniformly with the sand, rather more than five-eighths of an inch long, and about five-sixteenths broad; probably, in a coarser soil, they would have been less regular in outline.

The pupa was rather short and stout, smooth and cylindrical, ending in a short pair of blunt spikes, diverging from each other; the colour a deep reddish-brown.—

WM. BUCKLER, Emsworth: *June, 1872.*

Description of the larva of Brepbos notha.—I had no opportunity of becoming acquainted with this species till 1869, when Mr. W. H. Harwood kindly sent me several young larvæ; these fed well, but as I did not know how to provide for their pupation, my hopes of seeing the imago in 1870 were sadly blighted. However, in that year Mr. W. R. Jeffrey sent me two larvæ from Saffron Walden, and, as I managed to accommodate them more suitably than my former stock, I succeeded in rearing two fine moths.

As the insects appear early in April, the eggs must be laid some time during that month; the larvæ feed on Aspen (*Populus tremula*), spinning the leaves together flat-wise for concealment; those I had in 1869, on June 2nd, were still small, barely half-an-inch in length, but they grew fast after this, and retired to change by the 29th. The dates I have for the appearance of the imago are April 8th and 9th, 1870 (both cripples), and April 4th and 7th, 1871.

The larva, up to half-an-inch in length, is very dingy, nearly black, but bearing some exceedingly fine, pale drab longitudinal lines; after moulting, and when about three-quarters of an inch in length, it becomes less like a *Noctua* in form than it was before, and more like a *Geometer*, both in form and manner of progression; its colour now is of a delicate green, inclining in some instances to glaucous, the longitudinal lines become whitish-yellow; the head and second segment spotted with black; the segmental folds whitish-yellow. The growth now is rapid, and, in some individuals, black spots appear on the sides, in a day or two developing into stripes; but in others, no more spots appear than those on the head and the second segment.

The larva, when full-grown, is about one inch in length, not very stout, cylindrical, and diminishes so very slightly towards the extremities, that it appears of uniform bulk throughout: the head is full and rounded: the two front pairs of ventral legs are much less developed than the next two pairs, and the hindmost pair are splayed laterally: beneath the anal flap is a small point, with a tubercle on each side of it; the segments are plump and well defined: the mode of progression is an undulating, half-looping, quick walk, changed to what may be called a run when the larva is exposed to light.

The ground colour is now of a pale subdued tint of green, or else a bright velvety yellowish-green, the dorsal vessel rather a deeper tint of the same, edged with fine lines of pale greenish-yellow, the sub-dorsal fine line is yellow, and between it and the spiracles runs another such fine line—the side being now more or less black is, by this pale line, divided into two broad black stripes, which, in some specimens, are complete, in others only partly so; the spiracles are white, outlined delicately with black, and beneath them is a broadish stripe of pale yellow or whitish-yellow; the belly and legs paler green than the back: in one individual a short, tapering, black streak, issued at the end of each segment for half its length forwards as an edge to the sub-dorsal line, but these streaks began on the twelfth and ceased at the fifth segment. The black marks on the head and second segment appear to be constant, and characteristic of this species, they may be more minutely described as follows: a broad

irregular blotch down the front of each lobe, forked at the side, and a round spot on the face between them, and two pairs (sometimes more) of black dots on the second segment; the pale lines of the back are absent from the second segment and from the anal flap; the anterior legs generally dotted with black. One of Mr. Jeffrey's larvæ furnished a good variety; its colour was a dingy, rather olive-brown, with the lines of a pale pinkish-grey, with only the usual black marks on the head, second segment, and anterior legs.

My first set of larvæ I furnished with earth and moss for pupation, with the result of causing the death of all but two, which produced crippled insects; the second set were supplied with pieces of bark, into which they could bore, and I now understand that a dead stick, or piece of dry, decaying wood would have been better still; for the habit of the larva is to excavate in the solid bark or wood a smooth, cylindrical chamber (reminding one much of the work of some of the carpenter bees) just big enough—without the least waste of space—to accommodate the pupa with the shrivelled larva skin behind; the circular entrance to the chamber is stopped with the gnawed raspings of the wood mixed with silk, but there is no silken lining to the chamber itself; the pupa lies with its head towards the entrance, and, after the exit of the moth, the empty pupa-skin remains in the chamber.

The pupa is about half-an-inch long, cylindrical and uniform, except a rapid tapering at the tail end, and tolerably smooth, except at the abdominal divisions, where there are rings of minute points; the abdomen terminates in a thick, blunt, somewhat flattened knob, furnished with two spikes, which, instead of projecting as usual in the same line with the body (or knob), turn off at right angles on either side; the colour a shining, dark red-brown.—*Id.*

Larvæ of Eupithecia pygmaea.—I have much pleasure in announcing that I have two larvæ of *Eupithecia pygmaea* feeding on flowers of *Stellaria holostea*, and I hope that before long they will be sufficiently grown to have their description taken by my friend Mr. Crewe.

Mr. Hodgkinson most kindly sent me a female moth, the only one he has captured this year, but unfortunately she died after laying but three eggs. Mr. Hodgkinson tells me he cannot find *Stellaria holostea* growing in the locality for the moths; but Herr Carl Plotz, to whose books of beautiful drawings reference has been made before in these pages, had figured the larva on that plant, and I found my larvæ take to it quite readily, as if it were their natural food; I should say they eat a little of the petals of the flowers, but seem to prefer the anthers and pollen.—*J. HELLINS, Exeter: 11th June, 1872.*

Captures of Lepidoptera near Aberdeen in 1871.—In the following list, I shall merely mention the scarcer species of *Lepidoptera* which fell to my lot last summer, as a complete list of those hitherto found in this district will be given in the list of Scottish *Lepidoptera* now appearing in the 'Scottish Naturalist.'

The localities in which I collected last summer are all in Aberdeenshire and the north of Kincardineshire, and, excluding Braemar (which is 50 miles from Aberdeen), none of them is over 20 miles from that town. The chief localities, besides Aberdeen itself and the immediate neighbourhood, were Muchalls, on the coast a few miles south, Banchory in the valley of the Dee, and Inverury (where I collected with Mr. Tait), about 12 miles from the sea.

Of *A. cardamines* one male occurred at Inverury on April 24th; *S. Semele* swarmed between Aberdeen and Muchalls, along with *L. Alsus* and *L. Artaxerxes*, neither of which species, however, is here confined to the coast, though both are local.

Of *Sesia philanthiformis* I got several larvæ near Aberdeen in April, and one moth at Muchalls in July; and this year (1872) I have again taken larvæ of this species. *Hepialus sylvinus*, a very local species here, also occurred at Muchalls, and *H. velleda* was common and widely distributed.

Of the *Notodontidæ* I got larvæ of several species, *P. bucephala* being very common: a young brood of this species occurred at Banchory, on birch, on September 12th. Larvæ of *D. fascelina*, and of *Demas coryli* were not very scarce, the latter species at Fyvie; but *Lithosia complanula*, besides being the only representative of its family, was very scarce, one specimen occurring at Muchalls. *N. plantaginis* was not uncommon, and larvæ of *S. fuliginosa* were abundant; while of *Liparis auriflua* one specimen was taken in Aberdeen in July, and is now in my possession: it must, surely, have been accidentally introduced. *P. lacertinaria* occurred at Banchory, but was rather scarce.

Among the *Noctuæ*, more of my captures were made at light than in any other way, some of them being pretty good species: *T. batis* was scarce in September as larvæ at Banchory. Of *Bryophila perla* a pair came to light, the first time the species has been taken in the district.

Among the *Acronyctæ*, my best captures were larvæ of *A. menyanthedis*, pretty commonly on heather, willow, &c.; and of *A. myricæ*. Of this latter species, I found several cocoons on stones near Aberdeen, from which the insects afterwards emerged. I also got the moths themselves at rest; and, in September, I found several larvæ, which seemed to be those of *A. myricæ* on *Rosa canina*, *Rubus fruticosus* (bramble), and *Viola canina*; they have spun up, so I hope to be able to make sure on the point. *Nonagria fulva* was scarce at Banchory and Fyvie, and *Gortyna flavago* came once to light (September 16th). *Hydræcia nictitans* was very common on ragwort, on the sand-hills. *Mamestra furva* occurred at Inverury, but was scarce, and so also was *Apamea unanimis*; *Miana arcuosa* pretty common. Several specimens of *Caradrina blanda* came to light; all the species mentioned as having come to light were taken in Old Aberdeen.

The genus *Agrotis* is pretty well represented in this quarter, 13 species at least occurring here; including *A. palligera*, very abundant on the links on ragwort; *A. cursoria*, rather common, at light, in August; what seems to be *A. obelisca*, rare, at light; *A. præcox*, scarce, at light; *A. pyrophila*, scarce; and *A. lucerneæ*, at Muchalls, not uncommonly. *Triphæna subsequa* occurred at Inverury, and also some fine specimens of *T. orbona* (var. *Curtisii*); *Teniocampa rubricosa* and *T. stabilis* were both common. *D. conspersa* was scarce and local; and of *Dasyptolia Templi* one or two were taken at light, and also larvæ in stems of *Heracleum sphondylium*. *Epunda lutulenta* occurred at Inverury, but was scarce, *E. nigra* being far more plentiful.

Of *Hadenidæ*, the best taken were *Aplecta tincta* at Braemar, very abundant; *Hadena glauca* at Inverury; *H. chenopodii*, scarce, at Inverury and near Aberdeen; and *H. rectilinea* at Braemar.

The *Geometræ* I shall mention very briefly, having already occupied so much

space on the preceding groups. *Gnophos obscurata* was common at Muchalls, to which locality it seems to be confined; *Dasydia obfuscata*, scarce, but extending from Muchalls to Braemar; *Psodos trepidaria*, very common on nearly all the hills in Braemar, over 2000 feet; *Ephyra pendularia*, in Braemar; *Acidalia fumata*, very common in Braemar; *Larentia salicata*, common in Braemar; *L. olivata*, common; *Emmelesia ericetata*, common in Braemar and near Aberdeen; *Eupithecia pumilata*, common, at Inverury; *Thera juniperata*, larvæ, in Braemar; *Coremia munitata*, common, occurred at 2600 feet, in Braemar; *Cidaria psittacata*, rather scarce; *C. miata*, common; *C. pyraliata*, rather scarce, at Muchalls, Aberdeen, &c.; *Chesias obliquaria*, common on the links, Old Aberdeen; *Tanagra chærophyllata*, local, and rather scarce, at Muchalls.

All those from Braemar were taken during the month of July, from the 10th to the 25th; in addition to those mentioned in this list as from that locality, is *Zygæna exulans*, which has been already well discussed by Entomologists, and of which I need say no more.

Many of the most interesting of our native *Lepidoptera* have been omitted by me from this list, not having been taken by me last summer. Among the *Sphingidæ* alone there have been taken here, *Smerinthus ocellatus* (once); *S. populi*, *A. Atropos*, *S. convolvuli* (every year almost); *D. galii* (rare); *C. Celerio* (twice); *C. Elpenor* (once); *C. porcellus*, *Macroglossa stellatarum*, *M. bombyliiformis*, *S. philanthiformis*, and *S. culiciformis*, at Braemar.—JAMES W. H. TRAILL, King's College, Old Aberdeen: May, 1872.

Rare Lepidoptera taken in the Isle of Man.—Judging from what I saw in my friend Mr. C. S. Gregson's collection, the Isle of Man seems to produce an unusual number of rare *Lepidoptera*. I will mention only the following:—a *Clostera* different from any of our known species, *Acontia solaris*, *Crambus alpinellus*, *Agrotis spinifera* (much finer and larger than the continental specimens), *Leucania Loreyi*, *Caradrina exigua*, *Micra parva*, *Abraxas pantaria*, *Heliothis armigera* (5), *Sterrhia saccharia* (9), and *Chærocampa Celerio*, bred from a larva he found there.

Mr. Gregson has a series of *Incurvaria canariella*, Stainton (Ent. Ann., 1872), under the name of *Incurvaria spinosella*, a name they have borne in his cabinet for many years; he had the specimens from the late Mr. Hague of Staleybridge, who took them in 1856. Mr. Gregson tells me he sent a specimen to Lewisham, under the name of *Incurvaria spinosella*, in 1870.—J. B. HODGKINSON, 15, Spring Bank, Preston: April 26th, 1872.

[Dr. Staudinger now suggests that the *Incurvaria* may be the *flavifrontella* of Heinemann. Von Heinemann thought he recognised in his *flavifrontella*, the *flavifrontella* of the Wiener Verzeichniss, published in 1776.—Eds.].

Note on Eidophusia Messingiella and Catoptria aspidiscana.—I went to look for this species ten days ago, though I knew beforehand that I must be too late, and instead of finding any, I got wet through. I believe it has rained here incessantly for six months. I have been twice after *Catoptria aspidiscana*, but only took two specimens in six days. I collected a good many larvæ of *Rhodophaea marmorella*, but they are very bad to get, and very local.—ID.

Note on the relations between colour and edibility in larvæ.—It has often been said that birds do not feed upon larvæ which are gaily coloured. A dozen years since I planted a quantity of Hounds-tongue in the garden, and placed larvæ of *Callimorpha dominula* upon it, and the species completely established itself here. This spring there were hundreds of caterpillars; but, about three weeks since, I noticed that their numbers were decreasing, and could not account for it. At last I found that a pair of large tits (*Parus major*), which had a nest in a hole in a tree just outside the garden, fetched them away to feed their young ones. Now this is one of the brightest-coloured larvæ that I know of. The larvæ of the *Zygænæ* are also gaily-coloured, and they are the favourite food of Cuckoos.—H. DOUBLEDAY, Epping: 30th May, 1872.

Practical hint for Lepidopterists.—That popular writer, Mr. Edmund Yates, in a tale called "The Yellow Flag" now being published in "All the Year Round" (8th June), enunciates a statement to the effect that one of his characters "would have found the winter evenings dull, had it not been for the excitement of *perpetually re-arranging* his large collection of moths and butterflies, *renewing their corks and pins*," &c. The italics are ours.—EDS.

On a fungoid epidemic among Xanthochlorus (tenellus, Wied. ?).—On the 13th August, 1871, I happened to examine closely some oak bushes at Shirley, when I was struck by the vast number of minute dead *Diptera*, all belonging to one species, which were affixed in the posture of life to the under-side of the leaves. At first I gave but little attention to the matter, being engaged in researches of another kind; but, when branch after branch on being turned up revealed the same ghostly assemblage, it struck me that I had come across the trail of a disease, like the one which *Empusa muscæ* causes among domestic flies. Further examination proved this surmise to be well founded. The area infected comprised a triangular rising piece of ground about an acre in extent, covered with a rank and mixed undergrowth, principally oak, interspersed with scattered timber trees of different sorts. A dense fir-wood formed the high back ground, while two roads, backed by steep banks, high palings, and a row of oaks, shut in the remaining two sides of the triangle, and were joined in one deep gully below.

A deserted half-overgrown gravel-pit, with large pools of rain water, occupied the corner nearest the junctions of the roads, just below the infected area. At the junction of the two roads below the gravel-pit, a considerable number of felled oaks were piled up. The spots where they had been felled were still marked by the discs of their roots, filled with the decaying chips, macerating in rain water. The weather at the time was warm and showery. Aspect due South. The prevailing local direction of the current of air, near the surface of the ground, was up the gully, across the gravel-pit, and over the infected area. I tested this repeatedly by setting free some spiders' webs. Having made this preliminary survey, I descended into the gully, and examined the oaks and all surroundings, but could not find a single one of the flies either dead or alive. The interior of the gravel-pit and the palings had their turn next, with a negative result, as not a fly was to be seen. I then examined the lateral borders of the pit nearest the roads, and here, on the under-side

of the foliage of the oak-bushes, a few of the "dummy" flies turned up, all in life-like attitudes. I tried hard to find specimens on other trees or low plants, but failed in obtaining any. Skirting the upper-side of the pit, I found the dead flies in greater numbers, till at last I encountered the "gros de l'armée" on the spot where I had started from, in a place which it appeared to me these *Diptera* could not well have reached in such numbers, owing to the density of the surrounding bushes, except by crossing the pit on the wing. Here their life-like remains were seen by hundreds. Turning my back upon this upper end of the pit, I worked my way through the dense undergrowth towards the fir-wood, watching the foliage as I went along. But gradually the number of flies grew less, and at last, while still at a good distance from the foremost row of pines, I found the bushes quite free of the bodies. Clearly, therefore, the centre of the disease was near the border of the pit, a fact of which I took good care to make sure by repeatedly starting off at different angles from the spot where the flies were most numerous. Of live specimens I could *not* find one, although I worked very hard for some hours. The dead ones, of which I secured a series, and which have since been identified by my friend Mr. Verrall, as belonging to the genus *Xanthochlorus* (probably *X. tenellus*, Wied.), presented a very characteristic appearance while fresh. Firmly attached by their outstretched legs to the under-side of the oak leaves, with the beautifully iridescent wings spread out at right angles from the body, with porrected antennæ and a fully stuffed body and thorax, their outward appearance, in some instances, belied their real state. But other specimens told the story only too plainly, their bodies being surrounded by a silk-like, silvery halo of spores, while their thorax and abdomen were closely fastened to the leaf by a felt-like, white fungoid mass; a few specimens were even covered with a close, white silvery shroud, rendering all parts of the body indistinct, except the wings and legs. Several bodies which I examined were stuffed with a white mass, undoubtedly the mycelium of the *Empusa*.

So far I have stated what are facts, and I must leave it to more competent minds to read them aright; but, taking all circumstances into consideration, I cannot help thinking that the vicinity of the rain water pools in the gravel-pit must have had something to do with the outbreak of this disease just on the borders of the pit: but why this congregation of dead just on the upper border? had the prevailing current of air anything to do with this? One other point must not be overlooked—the flies were only on the oak, but why?; am I to suppose that they are attached to that tree exclusively; if not, why was no other foliage or object selected to settle and die upon? These are only a few of the questions arising out of the observation before us, and concerning which I feel tempted to ask: "Quien sabe?"—ALBERT MÜLLER, South Norwood, S.E.: *May*, 1872.

Extraordinary circumstance regarding a dipterous insect.—On the last day of May, when I was collecting in one of our woods, I saw an extraordinary apparition flying through the air. I caught it, and found it to consist of two males and one female of a species of *Molobrus* simultaneously connected. Has any one ever before noticed a similar instance?—C. W. DALE, Glanville's Wootton: *5th June*, 1872.

[We do not at this moment remember to have seen records of this anomaly concerning the *Diptera*, but it has several times been noticed in other orders.—EDS.]

Reviews.

FOURTH ANNUAL REPORT ON THE NOXIOUS, BENEFICIAL, AND OTHER INSECTS OF THE STATE OF MISSOURI. By CHARLES V. RILEY, State Entomologist. JEFFERSON CITY, Mo. 1872. p. 145.

It speaks volumes for the far-sightedness of our Transatlantic cousins that they are fully alive to the necessity of having thoroughly sound and scientific information on subjects connected with economic entomology; and the State of Missouri will, at any rate, never have cause to regret having, as its first entomological officer, a gentleman of such ability as Mr. Riley, whom we had the pleasure of seeing in England last summer. This fourth report is fully equal, if not superior, to the preceding ones, and we cannot but think that English horticulturists, farmers, &c., would do well to study the series; they could not fail to acquire much valuable information thereby, for some of the species treated upon, *e.g.*, *Carpocapsa pomonella*, are well-known English pests. Europe has been blamed by Americans for the introduction into their Continent of several noxious insects, of which the cabbage-butterfly and gooseberry saw-fly may be cited as recent examples. On the other hand, the terrible vine-aphis (*Phylloxera vastatrix*), now proved to have been imported from the United States, threatens the ruin of the vineyards of Europe. The European notion, when anything of this kind occurs, is to form a Commission of enquiry on the subject; in America, it is considered safer to have a regular official, whose duty it is to examine into the evil when the first indications show themselves, rather than wait until it is thoroughly developed.

TRANSACTIONS OF THE NORFOLK AND NORWICH NATURALISTS' SOCIETY, 1871—72.

We have again the pleasure of noticing the records of the work done by this energetic local society. Possibly there is less entomological matter than usual, but all branches of Natural History are represented. Mr. Barrett publishes his further observations on coast insects found inland, and the President (Mr. Henry Stevenson, F.L.S.) in noticing the wholesale destruction of birds' eggs by dealers, casually alludes to the fact that *Papilio Mcphaon* has been all but exterminated by the same ruthless individuals.

THE BRITISH SPECIES OF CRAMBUS. By F. BUCHANAN WHITE, M.D.

This pamphlet, the contents of which were originally published in the pages of the 'Scottish Naturalist,' will be found extremely useful for the determination of the species of the difficult genus *Crambus*. The descriptions are lucid, and the notes on the distribution of each species in Britain, and on the continent, are very valuable, as are also the indications of species which, though not hitherto recorded as British, may be reasonably expected to occur here.

ENTOMOLOGICAL SOCIETY OF LONDON: 3rd June, 1872.—Prof. WESTWOOD, President, in the Chair.

Mr. Stainton exhibited a twig of cork-oak from Cannes, placed in his hands by Mr. Moggridge, bearing examples of a large, black, berry-like *Coccus*.

Prof. Westwood exhibited a large cotton-like mass envelopping the cocoons of a minute parasitic insect of the genus *Microgaster*. He had extracted 717 insects, and, as many more remained, there were evidently about 1000 examples, all of which had infested a single larva of some large species of *Bombycidæ* in Ceylon.

Mr. F. Moore had noticed a similar occurrence in the larva of a species of *Odonestis*, from Bombay.

Prof. Westwood also exhibited an apple twig, the buds of which were destroyed by some larva which he thought might be that of one of the *Tortricidæ*.

Mr. Stainton exhibited a drawing of a vine-leaf mined by the larvæ of *Antispila Rivillei*, found at Massa di Carrara by the Hon. Beatrice De Grey, and a bred specimen of the perfect insect. He detailed the circumstances that led to the re-discovery of this insect, which had not been observed since Riville sent an account of it in a letter to Réaumur in 1750, from observations made in the island of Malta.

Mr. Higgins exhibited a selection of beautiful species of *Cetoniidæ*, principally from Java, recently obtained from Dr. Mohniki.

Mr. Jenner Weir stated, that having recently planted a variegated form of *Rhamnus alaternus* in his garden at Blackheath, it was at once discovered by *Gonopteryx rhamni*, which laid its eggs thereon. He had not observed this species in his garden during sixteen years, and considered it remarkable that the plant should so soon have attracted it, although, in outward appearance, it was so utterly different from the two indigenous species of *Rhamnus*.

Mr. McLachlan read a note received from Prof. Newton concerning the habits of *Merope persicus*, which bird lined its nest with the remains of dragon-flies, on which insects it apparently fed.

Mr. Müller called attention to a paragraph in the 'Times' concerning a plague of ants on the island of May to such an extent to render the land practically useless to the lighthouse keepers, so far as cultivation was concerned, and which had occasioned a visit to the island of the Northern Lighthouse Commissioners for the purpose of investigating the matter.

The Secretary read an extract from the 'Petites Nouvelles Entomologiques' of the 1st June, concerning the discovery of large numbers of *Calosoma sycophanta* on the dead body of a man who had hung himself in a forest near Rheims. As the corpse was in a state of putrefaction, it was considered that the odour had attracted the beetle; and it was suggested that bodies of animals should be suspended in woods for the same purpose.

Prof. Westwood alluded to a notice by M. Guenée in the same journal concerning a female of *Spilosoma sordida*, which showed no inclination to pair with a male which, abnormally, was coloured as in the opposite sex, though she instantly mated with an ordinary male which emerged soon afterwards. M. Guenée seemed to think this a proof of the provision made by nature to ensure purity of race; but Mr. Stainton thought that, more probably, the first male was neglected as being unable to continue the species.

Mr. Briggs alluded to the infertility sometimes existing in insects, and mentioned especially that he had once failed to obtain fertile eggs from three pairs of *Clostera curtula*. He further remarked on the depraved sexual instincts exhibited in *Noctue* when intoxicated on 'sugar.'

NOTES ON *CICINDELIDÆ* AND *CARABIDÆ*, AND DESCRIPTIONS
OF NEW SPECIES (No. 16).

BY H. W. BATES, F.L.S.

CTENOSTOMA EBURATUM, n. sp.

Nigerrimum, nitidum; elytris humeris distinctis, postice nec dilatatis nec inflatis, usque ad apicem scabroso-punctatis, nullo modo rugosis; fasciola curvata prope basin, alteraque pone medium, albis, fere impunctatis.
Long. 6½ lin. ♀.

Very similar in colours and form to *Ct. luctuosum*; body above and legs clothed, as in that species, with very long, erect, black hairs. Distinguished by its basal elytral fascia, which is narrow, and curves a little from the shoulder towards the suture, which it does not reach. The median white fascia is similar to that of *Ct. luctuosum*, but does not touch the lateral margin, and is narrowed and hooked at its termination near the suture; the apex of the elytra is narrowly bordered with whitish. In form, the apex (in ♀) is rounded and dehiscent at the suture; the surface of the elytra is very coarsely scabrose-punctate without transverse wrinkles, and the punctuation continues, but much less strongly, to the apex. The antennæ are tawny, with pitchy marks on the first four joints. The forehead is coarsely punctured, and clothed with hoary hairs.

Taken by Mr. Rogers in the interior of S. Brazil.

In Mr. W. W. Saunders' collection, and my own.

CICINDELA DITISSIMA, n. sp.

Læte viridis, capite thoraceque creberrime subtiliter scabroso-punctatis, opacis; elytris velutino-opacis, sutura lineaque sub-marginali nitidioribus, utrinque vitta mediana flavo-ochracea; labro flavo, nigro-marginato, in utroque sexu elongato, antice truncato, valde tridentato, dente mediano robusto, apice bifido.
Long. 7½ lin. ♂ ♀.

Approaches nearest *C. aurofasciata*, but much more elongate and narrower. The head and thorax are much more finely shagreened than in that species, and the labrum differs in form from all the species of the group, being only 5-dentate, with the lateral tooth on each side broad and scarcely prominent, and the three apical teeth projecting from a straight anterior truncature of the organ; they are very much deflexed in the ♀, and the middle one is long and bifid at its apex. The head is broader behind the eyes, and more exserted than in *C. aurofasciata*. The thorax is very similar in form to the same segment in that species, but is narrower than the head. The elytra are

very elongate and parallel-sided, obtusely rounded at the apex; their velvety surface appears rich dark blue in certain lights, and the yellow vitta is continuous from the base (which is also yellow, including a streak on the shoulder) to very near the apex, but it is slightly uneven in width. The under-side of the body is blue-green, with the sides of the metasternum (not the episterna) and of the abdomen clothed with silvery pile. The trochanters are yellowish, and the femora tinged with golden. The palpi are yellow, with two joints of the maxillary and one of the labial black.

Hong Kong.

CICINDELA VELATA, n. sp.

C. aurulentæ simillima; differt capite et thorace suprâ æneo-nigris, hoc angustiori cylindrico; elytris læte nigro-velutinis, pruinosis, sutura æqualiter aureo-marginata, utrinque maculis 2 prope basin, 3^{ia} prope apicem, fasciæque mediana hamata, flavis. Long. 8 lin. ♂ ♀.

Deceptively similar to *C. aurulenta*, but differing from all the varieties of that species by the unicolorous head and thorax, and the golden margin of the suture not dilated near the base. The labrum also is different in both sexes, having very short and scarcely prominent teeth. The head is wider, with the eyes especially more prominent. The thorax is very much narrower than the head, with nearly straight sides; its surface is not velvety, and the disc is coarsely wrinkled transversely. The yellow spots of the elytra nearly agree with those of the var. *flavomaculata*, the median forming a transverse fascia, or, rather, two spots united by a slender line; the humeral spot, however, is much larger and rounder. The under-surface, legs, and palpi are dark blue, with green tinge.

Interior of Northern Borneo (Lieut. De Crespigny).

AMAROTYPUS, nov. gen.

Sub-family MIGADOPINÆ.

Corpore ovato Gen. *Amuram simulans*. *Antennæ articulis 4 basilibus glabris*. *Caput postice crassum, retractum, oculis haud prominulis*. *Mentum breve, leviter emarginatum, dente mediano brevi, bifido*. *Palpi breves, robusti, articulis ultimis elongato-ovatis, ad apicem sub-acuminatis, leviter oblique truncatis*. *Prosternum obtusum, haud porrectum*. *Epimeræ metasterni nullæ*. *Tarsorum maris articuli basales 4 pedum quatuor anteriorum dilatati, subtus spongiosi, articulo quarto æqualiter bi-lobato*.

The strange little Carabid forming this genus is distinguished

from the allied genera *Migadops*, *Brachycælus*, *Loxomerus*, &c., by the four dilated tarsal joints of the anterior and middle legs, and by the equality of the lobes of the fourth joint. The species resembles an *Amara* to deception, and forms an interesting addition to the Antarctic group *Migadopinae*, allied to our northern *Nebrianæ*, but differing from them in facies, and in the middle tarsi being generally dilated. In form, *Amarotypus* resembles *Systolosoma*, but the hind coxæ do not reach the side of the body, as in that still more anomalous genus.

AMAROTYPUS EDWARDSII, n. sp.

Ovatus, cupreo-fuscus, nitidus, antennis pedibusque rufo-piceis, palpis flavo-testaceis; elytris seriato-punctatis. Long. 3 lin. ♂ ♀.

Of similar ovate form to *Amara plebeja*; dark pitchy-brown, with a uniform coppery-æneous tinge above; shining. The head is very similar to that of *Rhytidognathus ovalis*, being *widened* behind the eyes; the forehead is, however, a little dilated, and projects over the base of the antennæ. The palpi are short, as in *Brachycælus*; the terminal joints are thick and appear pointed, but the points are the upper ends of an oblique truncature, visible only in certain positions. The thorax widens from front to back, and at the base is quite as wide as the elytra: it is convex, slightly wrinkled and impunctate, and has, near the hind angles, two oblong foveæ; the exterior one very narrow and scarcely visible, near the angle, and the interior one much more conspicuous, at some distance from the other. The elytra are rounded and entire behind; they have each nine rows of short, linear, sharply-cut punctures, the marginal row not much more impressed than the others; there is no trace of striæ, and the interstices are somewhat uneven. The anterior tibiæ have a deep notch before the apex, with one spur above the notch and one at the apex. In the ♂ the anterior tarsi are more widely dilated than the middle pair; the 4th joint is nearly as wide as the others, and its lobes are short and equal.

Found in New Zealand by Mr. H. Edwards (now of St. Francisco), who kindly sent me three examples.

NEBRIA MANDIBULARIS, n. sp.

Elongato-oblonga, parallela, nigra; capite grossissimo, mandibulis maxime elongatis; thorace magno, quadrato; elytris elongatis, parallelis, sub-punctato-striatis. Long. 9 lin. ♂.

Quite unlike any other known species; the thorax resembling

that of many *Carabi* in its square form and broadly-produced hind angles. The whole body is nearly the same in breadth from the middle of the head to near the apex of the elytra, and is of a shining black colour throughout. The head, as in the group to which *N. Marschallii* and *Fischeri* belong, is not narrowed behind the scarcely-prominent eyes. The mandibles (especially the sinistral) are greatly elongated and bent at the tip. The tooth of the mentum is strongly bidentate. The thorax is quadrangular, broader than long, with moderately prominent and acute anterior angles, and broadly-produced but obtuse hind angles; it is slightly narrowed behind the middle, widening again before the base; the middle of the base is broadly sinuated; the surface is very finely punctulate and wrinkled, and the lateral margins moderately dilated and reflexed. The elytra are elongate-oblong, nearly parallel-sided, with rectangular shoulders, and sharp but fine striæ, minutely punctulated. As in *N. intricata*, *Mniszechii*, and allied species, the apex of the elytra has a short ridge with groove on each side. The whole insect is of a deep, shining black.

One example, from a collection made in Northern Persia, Kurdistan, and Mesopotamia.

NEBRIA CHINENSIS, n. sp.

Elongata, piceo-nigra, antennis, palpis pedibusque rufo-piceis; capite parvo, oculis valde prominentibus; thorace transversim quadrato, postice gradatim leviter angustato; elytris oblongo-parallelis, acute punctato-striatis, interstitiis omnino crebre punctulatis, 3^{io} 4-punctato.

Long. 6½ lin. ♂.

A very distinct species, belonging to the *N. brevicollis* group; more elongate than *brevicollis*, and distinguished by the punctulate elytra. The head is sparsely punctulate, with very projecting eyes. The thorax resembles that of *N. brevicollis*, except that the sides have no trace of sinuation, and the hind angles are not at all produced; they form in fact an obtuse angle, with a small, sharp tooth at the apex; the surface is thickly rugose punctate, except on the convex disc, which is very minutely strigose and glossy. The elytra are more elongated, the striæ sharp, like fine grooves, with minute, regular punctures. The shoulders are rounded, and the basal fold does not project as a tooth. The legs are pitchy-red, becoming blackish on tarsi and outside of tibiae.

Taken on the Yang-tsze Kiang, in Sze-chuen, by Mr. Consul Swinhoe.

Kentish Town: July, 1872.

ON A NEW SPECIES OF *NEOLUCANUS* FROM NORTHERN INDIA.

BY CHAS. O. WATERHOUSE.

The insect which I am about to describe has been for a long time standing in the British Museum Collection as a new species of *Odonotolabis*. M. Henri Deyrolle, on his last visit to England, pointed out that it was a *Neolucanus*; of which genus it is apparently an undescribed species, allied to *N. cingulatus*, differing especially in being more depressed, and scarcely visibly punctured on the thorax and elytra.

NEOLUCANUS MARGINATUS, sp. n.

♀. *Piceo-niger, sat depressus; capite thoraceque opacis; elytris sub-nitidis, subtilissime punctulatis, nigro-piceis, singulis vittâ magnâ sub-marginali flavâ ornatis. Gula impunctata. Tibiis anticis tridenticulatis; tibiis posticis extus quadri-sulcatis (sulcis fortiter punctatis), intus punctorum seriebus duabus impressis. Abdomine lateribus apiceque punctulatis, medio lævi.* Long. 18 lin., lat. $8\frac{1}{4}$ lin.

Pitchy-black, with the sides of the thorax pitchy. Elytra pitchy-black, each elytron with a broad ochraceous stripe extending from the shoulder almost to the apex; this stripe is narrow at the shoulder, then somewhat suddenly widens, and remains of an equal breadth for about half of its whole length, and then gradually narrows to the apex, thus leaving the elytra narrowly bordered with black, and with a somewhat triangular patch of the same colour covering the disc; the suture is pitchy.

The anterior tibiæ are furnished on the outer edge with three sharp teeth, and the apex is bifurcate. The posterior tibiæ are longitudinally canaliculate, the channels are four in number on the outer side, deeply and closely punctured; on the inner or under-side there are two longitudinal rows of deep punctures, one of them forming a slight channel at the base; the space between this row and the channel next to it of the four above mentioned is very convex, and has only four or five punctures; in the second row the punctures are separated from each other; the space between these two rows is convex and impunctate. The head is sparingly but deeply punctured on the under-side between the eye and the gula, the gula itself is very shining, with scarcely any visible punctures. The abdomen has the sides and apical segment punctured, the central part smooth, with a few minute punctures visible with a magnifying power.

Habitat: Northern India.

British Museum.

This insect most nearly resembles *N. cingulatus*, from which it may be distinguished by being less convex and proportionately longer. The thorax is dull, without admixture of large punctures on the surface, except a few indistinct ones on the disc; whereas, the whole surface of the thorax in *N. cingulatus* is thickly punctured on the dull ground; the elytra are also more distinctly but finely punctured in *N. cingulatus*. The gula in *N. cingulatus* is moderately thickly but strongly punctured, and the abdomen is visibly but finely punctured in the central part. The anterior tibiæ are furnished with four sharp teeth; the posterior tibiæ in *N. cingulatus* are furnished with two longitudinal channels on the under or inner side, the space between them being furnished with about five punctures at the apex, and the space between the outer of these two channels and the innermost of the four channels on the outer side of the tibiæ is furnished with a row of large oblong, semi-confluent punctures.

There is an insect in the British Museum Collection which may prove to be the male (*var. minor*) of the above; but there is little more than the fact of their having come in the same collection (with other *Neolucani*) to lead to this conclusion. It appears, however, to be quite distinct from *N. Baladeva*, having nearly the whole of the thorax and elytra castaneous. It is much less convex than *N. Baladeva*; the canthus of the eye is more prominent and acutely angular, and the head is more suddenly contracted behind the eyes. The thorax is broader posteriorly, and the sides are less rounded, with the margins more flattened.

British Museum: *July 17th, 1872.*

NOTES ON THE BREEDING OF *ANTISPILA RIVILLEI*.

BY H. T. STANTON, F.R.S.

From the larvæ of this insect, collected on the vines at Massa di Carrara by the Hon. Beatrice de Grey, last October, I have now reared ten specimens of the perfect insect.

It will frequently happen that that to which we have looked forward most eagerly, and from which we have anticipated a great amount of pleasure, will be found, when actually attained, a source rather of discomfort than happiness; and so it has certainly been with me in the case of this *Antispila*.

Never before have I known what it was to dread to have to pin and set a moth. All things are supposed to become easier with prac-

tice, but either that is not the case with the pinning and setting of *Antispila Rivillei*, or the nine specimens already manipulated have not afforded me a sufficient amount of practice.

In the first place the insect is *so small*; whereas my smallest *Antispila Treitchskiella* expands fully three lines, my largest *A. Rivillei* is little over two lines, and the smaller specimens are considerably under two lines; indeed, one specimen appears to be smaller than a *Nepticula microtheriella*, which I have placed beside it.

In the second place the insect is *so glossy*, that it has a tendency to slip about, and the normal position of the wings render it far more difficult to pin than a *Nepticula*, which lies flat, besides having the advantage of being roughly scaled.

Hence, whereas I have always hitherto considered that the pinning and setting out nicely of a small *Nepticula* was the *ne plus ultra* of a Micro-Lepidopterist (how often have I used the phrase in speaking of a Micro-Lepidopterist, "Oh! he can set *Nepticulæ*!"), I have to admit now that a far severer test is afforded by the *small, glossy, Antispila Rivillei*.

When I stumbled over the first specimen, I thought the difficulty arose from my own nervousness, at having before me an insect which had not been seen for 120 years, and which might, perhaps, be the only specimen which I should breed; but when, after breeding a few more single specimens, three specimens appeared simultaneously, and my difficulty in pinning the creature still continued, either my nervousness was extremely obstinate, or the insect really did present some unusual difficulties.

The head (where visible, for many of my specimens are pinned *through the head*) and face are silvery; the antennæ dark fuscous, annulated with whitish, little more than one-third the length of the anterior wings.

The anterior wings are glossy brown-black, with four bright silvery spots, two on the inner margin, and two on the costa; the dorsal spots are placed anterior to the costal spots, and are both nearly triangular, the second one being the largest; the first costal spot is triangular, but very small, being the smallest of the four spots (I apprehend it extends little beyond the sub-costal nervure); the second costal spot has its hinder margin rather hollowed or curved. The tips of the cilia are whitish.

The position of the spots is well shown in fig. 4 of the frontispiece to the 'Tineina of Southern Europe,' only there the relative sizes of the two costal spots are transposed. This figure of course is

magnified, and is so stated to be by M. de Riville; but the cases were, I believe, intended by him to represent the natural size of his cases, and they are very much larger than those of the insect I have been rearing—they are larger than my cases of *Antispila Treitschkiella*. Hence I cannot help entertaining a somewhat uneasy feeling that possibly there may be another vine-feeding species of this genus in southern Italy. It is even possible that that might be the veritable *Rivillei*, and the insect I have been now noticing a species totally hitherto unknown, which has been found in the search for “the lost Pleiad.”

Did not Columbus by going westward in order to reach China discover America? The search for the known often results in the finding of the unknown.

The first imago of *A. Rivillei* appeared on the 23rd May; another appeared on the 2nd June, and another the following day; another specimen appeared on the 10th June; on the 14th three appeared (on the 21st June I left home for a fortnight, and put all my pupæ in a cool place till my return on the 5th July); another appeared on the 6th and another on the 7th July (but strange to relate, *both* these were injured in boxing; their remains, however, I have carefully pinned); another specimen appeared on the 16th July and is still living, waiting till I can screw up my courage again to grapple with so great a difficulty as the pinning and setting of *Antispila Rivillei*.

Mountsfield, Lewisham: July 18th, 1872.

NATURAL HISTORY OF *TRIPHÆNA SUBSEQUA*.

BY WILLIAM BUCKLER.

On September 6th, 1871, Mr. George Norman, of Forres, most kindly sent me some eggs laid by a female of this species. The larvæ began to hatch on the evening of the 13th; on the 23rd they moulted; by October 14th they were five-twelfths of an inch in length, and growing fast, so that by the 20th they were five-eighths of an inch long; after this, most of them ceased feeding for hibernation, but some went on till full growth, moulting for the last time during the latter part of November, becoming full-fed from the 16th to 27th of December, and pupating shortly after. The hibernating larvæ did well enough whilst the weather was mild, and fed a little, and got through a moult in January, 1872; but, on the 29th of that month, a severe frost killed most of them, and the survivors perished in a similar way on February 21st.

I sent some eggs to Mr. Hellins, who managed to bring three larvæ through hibernation, keeping them in a cucumber frame without bottom heat ; but he bred only one moth (June 12th), the pupa state having lasted four or five weeks.

The food the larvæ chose at first was cowslip, garden riband grass, and *Ranunculus acris* ; after a time they seemed to prefer *Potentilla reptans* and *Ranunculus repens*, and on this last they fed up ; Mr. Hellins tells me his larvæ stuck to the riband grass throughout.

The egg, as with other species of this genus, was small, somewhat globular, but rather flattened above ; the shell glistening, with thirty blunt ribs, and faint reticulations ; the colour at first dirty white, and in four days there appeared a greyish-brown blotch on the apex, and a zone of irregular blotches round the middle ; just before hatching, the colour was pale grey.

The young larvæ were at first of a semi-pellucid greenish-grey colour, with a brown head, and an internal brownish-green vessel, all the usual warts very conspicuous, and bearing each a bristle. In ten days they had moulted into opaque, brownish-grey coats, having a stripe of cream colour above the legs : at their next moult, when from three to four lines long, they were of similar colour, the dorsal and sub-dorsal lines becoming faintly visible, the former as a pale thread running down the centre of a brown stripe, the latter as a fine line rather paler than the ground, and edged above with a thread of darker ; the lower stripe above the legs much paler than the ground colour. In three weeks more they were five lines in length, and stouter in proportion than before, and now showed the dorsal stripe white running uninterruptedly through oval shapes of brownish-grey, darker than the ground colour, the sub-dorsal stripe as before, and the pale sub-spiracular stripe having a fine line of white on its upper edge. These details, even at this early stage, effectually distinguish this species from either of its congeners. Another week of growth brought them up to five-eighths of an inch in length, and they were now generally of a little deeper tint of greyish-brown, the dorsal white stripe still the distinct character, running now through elongated diamond shapes, darker than the ground colour ; the sub-dorsal stripe a little less white, with a series of oblong black dashes along its upper margin ; just before the last moult the whitish stripes assumed an ochreous-yellow tint, and the whole ornamentation generally came very near to the appearance of the full-grown stage—now to be described.

The full-grown larva is $1\frac{1}{2}$ to $1\frac{5}{8}$ inches in length, of stout proportions, cylindrical, and of tolerably uniform bulk throughout, tapering

a little from the fifth segment to the head, which is a trifle the smallest; and the thirteenth segment tapers also a little, and is rounded off behind; the segmental divisions are slightly indented; the smooth skin has a velvety appearance. The ground colour is greyish-brown or pale drab; on the back of each segment is a much darker and rather olive-tinted mark of a diamond shape, with the points truncated; through the middle of this row of diamonds runs the very conspicuously wide dorsal stripe of bright ochreous-yellow, which, at each end of the body, becomes narrower, and is relieved throughout by a very fine black edging; sometimes a faint cloud of greyish appears in the middle of this dorsal stripe, but this is oftener met with in the earlier stages; the sub-dorsal stripe is almost as wide as the dorsal, but is rather more of a greyish-yellow, and clouded faintly with greyish along the middle, and it is well relieved on its upper and lower edges by a thin darker line; close along the upper edge, in contact with it, is a series of oblong, square black marks, each mark situated on the anterior portion of a segment, those on the third and fourth segments being narrower than the rest and rather wedge-shaped, that on the twelfth extending the whole length of the segment; the tubercular marks on the back are black, and three on either side of the dorsal stripe in each segment and in the post-thoracic segments are thus arranged:—the middle one of each three is seen as a dot, sometimes faintly confluent longitudinally, and the other two are merged within transverse narrow bars of black, the one in front at the segmental division, the other behind the square black mark previously mentioned, only the slenderest interval of the pale ground colour separating them; adjacent on the back, near the segmental divisions, are a few fine longitudinal streaks of greyish yellow: the ground colour of the side, as far as the spiracles, is the same as that of the back, with a darker longitudinal stripe running midway through it, more strongly tinged with darker brown at the beginning of each segment; the very broad sub-spiracular stripe is pale ochreous at its upper and lower edges, rather greyish-ochreous along the middle, bearing a couple of brown freckles on most of the segments; the upper edge of this stripe is well defined by a very fine brown line, on which are the spiracles, small and white, either simply outlined with black, or placed in fusiform black blotches, which gradually increase in size to the twelfth segment; the belly has a faint, indistinct, central, paler longitudinal line, and a few freckles of the same paler tint, but its general colour, as well as that of the legs, is a little deeper in tint than the sub-spiracular stripe; the ventral legs bear a couple of small brown dots, and are tipped with hooks

of the same colour; the head is brownish-grey, freckled with dark brown, and marked down the front of each lobe with a black wedge-shaped mark, pointing to each side of the mouth; the sides of the head bear also a black streak.

It will thus be seen that this larva is a much handsomer creature than either of its congeners in this country, and abundantly distinct from them.

The pupa-state was assumed at a slight depth below the surface of the soil, and there seemed to be little appearance of any cocoon or chamber; the pupa was full and rounded in figure, the skin being thin and of a bright red colour.

Emsworth: *July, 1872.*

Ravages of Anobium.—The floor of an upper room at Mr. Van Voorst's, our worthy publisher, Paternoster Row, upon which part of his stock of works in sheets has been placed for security, is riddled by *Anobium striatum*, Ol., which, in its efforts to publish itself to the world, has penetrated a layer of half-an-inch of paper (5 quires deep, with strong outer wrapper). A good soaking with boiling water containing carbolic acid may, perhaps, suppress further editions of the beetle; and the stock could with benefit be placed on tin plates, though even the metallic intervention might not prove effectual, as I have known *A. tessellatum* bore clean through leaden roofing under similar conditions. I remember finding *A. striatum* (which, in the present instance, exhibits a great lack of *esprit de corps* in attacking a natural-history book publisher) in multitudes, quietly converting into the resemblance of a cullender bottom the superficies of an elegant sideboard in a friend's house, bought as solid mahogany, but really made of British wood with a thin veneer, the white dust of the native fibre pouring through the neat drill holes on to the carpet. My friend Dr. T. Algernon Chapman once sent me vast quantities of ivy stems from Abergavenny, peopled with this beetle, among others of greater value: these stems I kept in an unoccupied bed-room, collecting the last-mentioned species from day to day on the windows and walls, and thoughtlessly leaving the *Anobium*, the numbers whereof were enormous. I have since moved from that house, and can only hope my late landlord will not peruse these lines, lest the idea of an action for dilapidations should occur to his mind.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: *July, 1872.*

Note on Lamprias (Lebia) chrysocephalus, Motsch.—Baron Chaudoir (Bull. de la Soc. Imp. des Nat. de Moscou, xliii, pt. 2, p. 137), who has just completed his monograph of the *Lebiades*, sinks Motschoulsky's insect above named as a var. of *chlorocephalus*, which he (Chaudoir) states to occur in the south and west of France, and to be smaller than the type, with the elytra proportionally more abbreviated, and the thorax generally less transverse. This is evidently the same insect as that referred by me to Motschoulsky's *chrysocephalus* from Shirley, in Ent. Mo. Mag., iv (1868), p. 190.—ID.

Note on Ilybius ænescens, Thoms.—Like my friend, Mr. E. C. Rye (Ent. Mo. Mag., ix, p. 36), I am inclined to refer my supposed specimens of *I. angustior* to this species. I have examples from the south of Scotland, the Cheviot district, East Cumberland, and from the south of England. All have the antennæ totally red, and are evidently of one species; but in no instance do I detect Herr Thomson's sexual character of "*Mas. : pedum intermediorum unguiculo postico basi subtus sinuato*" (Opusc. p. 125).—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne: July, 1872.

Note on Ocypus morio, Auct.—I have long had in my collection one of those small specimens of *Ocypus morio* mentioned by Mr. Rye on the above page, and which was taken near Hartlepool, Co. Durham, in October. Placed alongside of ordinary *morio*, of equal size, the difference in appearance is so great that it is very difficult to believe them to be of one species; but, having only one example of the smaller race, I will content myself with pointing out how it differs from the typical form. Agreeing generally with the characters pointed out by Mr. Rye, this individual has its head nearly quadrate, the greatest width being behind (not nearly orbiculate, with the greatest width immediately behind the eyes, as in *morio*); the eye is much larger in proportion to the size of the head, and more upright; the elytra are proportionately larger, browner in colour, with the apices less oblique and more rounded; the abdomen has its intermediate segments less dilated, whilst the legs are more sparingly covered with pubescence, with the tibiæ much less strongly spinose.—ID.

The sound produced by Pelobius Hermannii.—On this subject, a friend writes as follows:—"Of the beetles, popularly known as 'screech-beetles,' I have several in my aquarium, which contains more than 20 gallons of water, and I have heard the peculiar noise from which the name is derived emitted when two beetles were quarrelling for a piece of worm. I think the noise came from two at the bottom, but as several couples were quarrelling at the time, it might have proceeded from a couple nearer the top."—J. W. DOUGLAS, Lee: 15th June, 1872.

Note on the oviposition of Chrysopa.—A fortnight ago, at nine o'clock in the evening, I saw a *Chrysopa* leave a broom tree in the garden here. After capturing and examining it to make sure of the genus, I gave it back its liberty, but thought it strange at the time that *Chrysopa* was to be seen on the wing so late.

Yesterday, while examining the same tree again, I found several of the branches thickly covered with hosts of mostly apterous slate-coloured *Aphidæ*. Between them, I noticed the well known eggs on long stalks of a *Chrysopa*, and it strikes me now that I must have interrupted the ♀ insect while depositing her eggs. In most cases, the pedunculate eggs were fixed by minute, white, flat discs to the stem of the plant, as could be ascertained by gently pulling them off; but, finding some of the eggs moving rather suspiciously, I examined their position closely, when it appeared that several were fixed by their basis to the backs of full-grown *Aphidæ*.

I have now two such creatures walking about before me, each carrying the pedunculated egg of its enemy. In the eggs fixed to the stem of the broom the stalks are of uniform thickness, and quite white; but, in the case of those fixed to the

Aphidæ, the lower part of the stems is somewhat discoloured, and at the same time thicker than the upper part of the peduncle. Perhaps the kicking of the *Aphis* during the implanting of the egg has something to do with this inequality in its thread-like stem.

Some of the eggs have already hatched, and it is very interesting to see the voracious-looking larvæ, with their enormous mandibles, slowly move among their victims. I find these young *Chrysopa* larvæ carry their heavy hind-body in an upright crooked manner, that is to say, they use the last segment as a kind of rest and propeller for the others. They make no attempt at present to leave the branches on which they were born, although very active in their movements.

July 16th, 9 p.m.—I have just watched another specimen of the same *Chrysopa* depositing three eggs on the same plant. The insect, while laying, clings in an inverted position by her legs to a slender branch, with the abdomen along the branch and the folded wings directed downwards. As it is getting too dark for out-of-door observation, I have captured the insect, and, taking her in-doors, have just confined her in a glass-topped box, where she is now laying her eggs under my eyes, by attaching the stalks to the top of the box. With the aid of Mr. M'Lachlan's Monograph, I find that it is *Chrysopa septempunctata*, Wesmael. A very disagreeable experience indeed, enables me to bear out my friend's statement that this creature is "especially entitled to the appellation of 'stink-fly.'" The smell is really so disgusting, that were it not that I wanted to observe the oviposition closely, I should have flung the creature away immediately. If this odour be not protective against man and beast, I shall cease to believe in the efficacy of smells altogether. It is now a quarter-past nine: the *Chrysopa* has laid fifteen eggs since I placed her in the box. Her proceeding in egg-laying is as follows:—before the operation commences, a slight but very distinctive twisting of the segments of the abdomen is perceptible, as if to get certain internal organs and their contents into the most suitable position. Of course, this is a mere supposition of mine, but I cannot help mentioning it. The insect then slowly curves the hind-body upwards till the external part of the oviduct touches the glass. At this moment, a small drop of viscid liquid appears at the outlet of the oviduct; this drop is brought into slight contact with the glass, the body is then gently, but with extreme steadiness, withdrawn to a distance of exactly seven millimètres, and remains connected by a semi-transparent thread of the gummy liquid to the glass. One end of the oval pale green egg now appears to stop up the oviduct, and is seen to join the end of the viscid thread. The abdomen is now again gently moved to the distance of half a millimètre, by which movement the full half of the egg becomes visible. At this juncture, all movement ceases for five or six seconds, and the half of the egg is seen to be tightly held by the aperture of the oviduct, while the hind-body itself seems to stiffen in a most singular fashion. No one who has not seen this sudden change from gentle movement into the most absolute steadiness and repose, can have a correct idea of the process. It is as if all the insect's will had been brought into play to maintain the utmost steadiness of the whole body; even the movements of the antennæ and palpi have ceased, as if the insect feared lest some mishap might disturb the consolidation of the thread and its safe connection with the egg. After the time mentioned, the other half of the egg gently slides out of the oviduct, and the *Chrysopa* finally gets rid of it with a slight jerk. The egg itself is a millimètre in length, and of an oval, elongate shape; in

colour, it is of a lively pale green. The pedicle is now stiff enough to support the egg without much bending. After depositing one ovum, the ♀ simply moves forward a few steps and repeats the operation. The ova in the box are fixed in four nearly straight rows, but this arrangement is to be attributed to the artificial nature of the surface presented; on the broom they are ranged in one row along the twigs. The insect is very neat in its ways, continually cleaning its antennæ and feet, by passing the former through the claws of the fore-feet and the three pairs of feet through its palpi. Having accidentally hurt one of her hind legs, the *Chrysopa* has brought it forward to her mouth and licked it, as a cat would lick its paw under similar circumstances.

July 17th. 8.15 p.m.

A batch of *Chrysopa* eggs from the same bush is now hatching under my eyes. The mature egg is pale fuscous; the young larvæ force their way out of the soft, transparent, white egg-skin with the head foremost, till the whole body is liberated, when they remain suspended by the last abdominal segment with the head downwards. Their bodies are now pale fuscous, their mandibles and legs transparent, and they are covered with long, stiff, isolated, curved hairs. After a few minutes, the last few abdominal segments are suddenly curved upwards, till the larva is able to clasp the empty egg-skin with its legs. In this position, it rests again for a little while with the last abdominal segment still in the egg-skin; subsequently, the terminal segment is withdrawn finally from the egg-skin, and the larva again rests. The relative position of the resting larva to the deserted egg may be compared to the letter O; one side of the letter to represent the larva, and the other side the egg-skin. The hind-body of the larva at this stage is very elongate, and in a resting position is still kept bent round the basal part of the egg, without, however, touching the latter, the larva being kept in position by clasping the circumference of the egg with its limbs. After thus resting, it ascends the egg and begins to climb up the stalk by holding on with the feet only, but using the hind-body occasionally both as "balançoire" and as propeller, as circumstances may require. Once on the plant, it is as nimble and active as if it had been on its legs for a long time, instead of just having quitted the egg. When fully stretched out, it is 2½ millimètres in length, the head broader than the next segment, the remainder of the segments gradually tapering towards the last. Colour of the head dark fuscous, nearly black and polished; body many shades lighter, of a dirty fuscous hue. It is singular that, although the head itself is very dark, the formidable, crooked mandibles it carries are still almost transparent. These young larvæ are full of slow play, if I may use such a paradoxical expression. They amuse themselves by ascending and climbing down the deserted egg-stalks, and, in short, act exactly like so many little bears, which mammal they also superficially resemble in their hairy coats, and their manner of slow, deliberate climbing with outstretched limbs.—ALBERT MÜLLER, South Norwood, S.E.: 17th July, 1872.

Occurrence of Sisyr Dalii, McLach., in abundance.—On the 5th inst.—one of the hottest days this year—I proceeded to the banks of the Mole beyond Reigate, at the spot where, in 1866, I took a few specimens of *Sisyr Dalii*, and found the insect in great abundance, though, owing to the intense heat, many of them were dead and

broken before I got home. *S. terminalis*, which on my former visit was extremely common, was present in only one example. The almost ubiquitous *S. fuscata* was not seen.

S. Dalii has not yet been found out of Britain; but *S. terminalis* is recorded as occurring in Sweden, and I have received indications that it is also found in Germany.—R. M'LACHLAN, Lewisham: 8th July, 1872.

An addition to the list of British Psocidæ (Stenopsocus stigmaticus, Imhoff and Labram).—At the time and place mentioned in the preceding note, I captured 15 examples of *Stenopsocus stigmaticus*, described and figured by Imhoff and Labram in their 'Insekten der Schweiz.' This was almost the only described European species of winged *Psocidæ* that had not occurred in Britain when I wrote my Monograph of the British species of the family, and I was not then fully acquainted with it, and had not seen the original description and figure (cf. Ent. Mo. Mag., vol. iii, p. 245). Since then, I have received numerous examples from Herr Meyer-Dür from Bürgdorf in Switzerland, and from Belgium, and I possess it also from Germany, from an uncertain locality. Hagen considers the species identical with the insect described by Fabricius in his 'Systema Entomologiæ' as *Hemerobius striatulus* (cf. Stettiner ent. Zeit. 1866, p. 170), but it seems to me that the description is by no means sufficiently exact to identify the species, and I therefore have not adopted Fabricius's name. The insect may be described as follows:—

Antennæ slightly longer than the wings, black, the two basal joints yellow. The whole body is of a beautiful pea-green, when alive, with black markings, changing to yellowish-green soon after death. *Nasus* fuscous or blackish (less decidedly so in the ♂), and generally with the ocelli surrounded by blackish. *Thorax* almost entirely blackish above, the sutures between the lobes remaining green. *Abdomen* slightly blackish at base and apex; towards the apex is a ring of yellow, occupying a segment, scarcely evident in the living insect, but becoming very conspicuous after death, especially in the ♀. *Legs* greenish, the tarsi and (in the ♂) the apical portion of the tibiæ, fuscous; sometimes only the apical joint of the tarsi is fuscous. *Wings* hyaline; *veins* strong, almost entirely blackish; the vein under the pterostigma in the anterior wings, from its apex to the point where it emits the transverse veinlet, *much thickened and conspicuously black* (especially in the ♀), a character partaken of in a lesser degree by the transverse veinlet itself: *pterostigma* bright yellow, much angulated at the point where it emits the transverse veinlet. Expanse of wings 4 lin.

Closely allied to the common *S. immaculatus*, Stephens. Distinguished therefrom by its slightly smaller size, the much brighter green of the body, the brighter yellow of the pterostigma, the form of this latter (which in *immaculatus* is not at all, or scarcely, angulate at the point where it emits the transverse veinlet), and especially by the conspicuously thickened black nervure which bounds the pterostigma at its lower edge.

My examples were taken from a mixed hedge consisting of hazel, hawthorn, oak, buckthorn, &c., and I was not able to satisfy myself that the species was attracted to any one of these in particular. I had long felt sure that it would occur in Britain, and no doubt it exists in many localities. The Ceylonese *S. uniformis*, Hagen, is a very closely allied species.

It may here be mentioned, that of *Cæcilius Dalii*, which had only occurred in England (in Mr. Dale's garden at Sherborne), I possess an example found by Mr. Stainton among leaves of *Cratægus pyracantha*, mined by a micro-lepidopterous larva, brought by him from Florence. Thus Dorsetshire and Florence are its only known localities, excepting a doubtful specimen found in a hot-house in Belgium.—ID.

Description of the larva of Dianthæcia cæsia.—Towards the end of June, 1867, I received two small larvæ of this species, scarcely half-an-inch long, from Mr. C. Gregson, who sent with them a couple of flowers and a leaf or two of *Silene maritima*, and instructions to feed them on the flowers and leaves of that plant. Perhaps for want of sufficient air in their small box during the journey in hot weather, one arrived in a dying state, and though much attention was paid to the survivor, that also soon sickened and died.

I noted that this little larva was of a grey colour, marked with a series of dorsal diamonds of a darker brownish-grey, and the sides of the same brownish-grey, and the tubercular dots distinct as dark rings.

The next and only subsequent opportunity for studying this larva was generously afforded me by Mrs. Hutchinson of Leominster, who, knowing *cæsia* (at that time a comparatively recent addition to our list) was still one of my desiderata, very kindly sent me, on July 23rd, 1869, some examples of larvæ which her son, Mr. Thomas Hutchinson, had recently found on *Silene maritima* in the Isle of Man, in the hope that I might find that species amongst them; nor, indeed, was this a forlorn hope, for on looking over the larvæ—mostly familiar enough—I detected one which at once recalled to mind the *cæsia* of 1867. This I kept apart, and carefully tended with seeds of both *Silene maritima* and *inflata*, and it appeared to feed very well on both, without any apparent preference. At its arrival, it was about five-eighths of an inch in length, by the 31st it had increased to an inch, and by August 9th to one inch and a quarter, perhaps even a little more when thoroughly stretched out; it continued to feed for a day or two longer, and retired into the soil on the 13th for pupation.

Having but this one, I did not interfere with it to take notes of the pupa, lest I might by some accident destroy the chance of breeding the perfect insect, and so lose the opportunity for proving the figures taken of the larva were rightly named. Fortunately, the moth, a fine example, appeared on July 15th, 1870, evidently later than its parents had flown in their native haunts.

In several of the *Dianthæcia*, we are familiar with variations of the chevron pattern, but from all its congeners, *cæsia* is strikingly distinguished by these diamond shapes of freckles, as well as by the absence of positive outlines in the sub-dorsal and spiracular regions. The description given above of the larva of 1867 suits every subsequent stage up to full growth.

The full-grown larva was cylindrical, of moderate stoutness and about equal bulk throughout; the head rounded, and the anal segment only slightly tapered, and rounded off; the segments and sub-divisions very well defined. The ground colour on the back was pale greyish-ochreous, that of the sides, belly, and legs similar, but a little more ochreous-brown, and deeper: on each segment, and co-extensive with it in length and in breadth, extending to the sub-dorsal region, was a

diamond shaped mark, composed of dark grey-brown freckles thickly aggregated together; a broad band of similar freckling commenced along the sub-dorsal region and terminated rather below the spiracles; other freckles, fainter and farther apart, were low on the sides, disappearing gradually towards the legs, which were tipped with broad hooks; the head shining reddish-brown, the plate on the second segment was rather shining reddish grey-brown, and had a broad dark brown margin in front: the tubercular dots were whitish centres in rings of dark grey-brown, arranged in threes on either side the back of each segment; others, whose place was within the side band of freckles, were of the ground colour; the spiracles pale brown, outlined with black: just at the last, when the larva was in its plumpest condition, the last three segments appeared to taper a little.

There was a faint indication at first of a dorsal line or thread of pale ground colour enclosed within two dark grey-brown ones, but not very visible beyond the thoracic segments, excepting just at the segmental divisions.—WM. BUCKLER, Emsworth: *July, 1872.*

Description of the larva of Eupithecia pygmaæata.—Long, very slender, and tapering extremely on the capital segments. Ground colour pale, dull, yellowish-green. Central dorsal line pale olive, connecting a series of very distinct, well-defined, urn-shaped blotches of the same colour, which become confluent on the capital and anal segments. Sub-dorsal and spiracular lines pale olive, sinuous, distinct, and rather broad. Belly without markings. Skin rough and rugose, freely studded with short, whitish hairs. In form and general appearance comes next to the larva of *Eup. pulchellata*. Feeds on petals and anthers of *Stellaria holostea*. Full-fed June 20th.

I am indebted to the kindness of Mr. Hodgkinson of Preston, and Mr. Hellins of Exeter, for the opportunity of describing this interesting and almost unknown larva. The former gentleman took a ♀ moth on May 25th. She deposited three eggs on a daisy flower, which, together with the parent insect, he forwarded to Mr. Hellins. The eggs hatched June 2nd.

Mr. Hellins kindly sent me a larva on the eve of its last moult. I had no *Stellaria holostea* within easy reach, but found it feed freely on petals and stamens of *Cerastium tomentosum*.

Mr. Buckler has secured several life-like portraits of the interesting little stranger.—H. HARPUR-CREWE, The Rectory, Drayton-Beauchamp, Tring: *June 21st, 1872.*

Note on the habits of Eupithecia subciliata.—As a contribution to the history of *E. subciliata*, I send you my short experience of the larva. I took it abundantly in two or three localities in this neighbourhood, which forms part of what is termed by Mr. Barrett the "Breck"-sand of Norfolk. It fell easily to the stroke, from maple in full blossom; so easily, that I judged it was feeding on the blossom. On perusing Mr. Crewe's description of the larva, I thought it faulty in making it of uniform bulk, for I readily distinguished it in the umbrella from other small green larvæ as well from its segmental divisions being somewhat darker as from it being plumped out in the middle, and slightly tapering towards the extremities. This alteration in bulk, Mr. Buckler informs me, does not take place till just previous to

changing, when the colour of some of its markings change to a pinkish-brown, and this was just the stage in which I discovered it. I failed to beat it from any but trees in blossom, and most abundantly from stunted sickly trees with spare foliage, but abundant blossom, growing as underwood in a very poor, sandy soil.—H. WILLIAMS, Croxton, Thetford: 4th July, 1872.

Does Orthosia ypsilon hibernate as egg or larva?—A general conviction seems to have settled on the minds of Lepidopterists that the eggs of this species hatch in the summer or autumn, and that the larvæ hibernate; and, until the spring of last year, scarcely a doubt of the correctness of this supposition had crossed my mind. I had repeatedly found dozens of the larvæ half-an-inch to an inch in length under the loose bark of old willows, where a week or two previously scarcely one could be found; and as they could not have grown to this size in so short a time, thought they must hibernate, and when searched for before had not yet bestirred themselves. In the spring of last year, however, I found some very small larvæ spun up in young willow leaves, and this spring some similarly small larvæ accidentally got into one of my cages from poplar, brought in as food for another species. Does it not seem that the eggs hatch in spring just when the willows and poplars come into leaf, and that the larvæ, until they have attained some size, live in spun-up leaves, afterwards hiding in the day-time under loose bark?—GEO. T. PORRITT, Huddersfield: July 4th, 1872.

Habit of Laverna atra.—I have reared this from a larva which I found hanging by a silken thread from a hawthorn tree, October 19th, 1871. I put the larva in a glass cylinder with some leaves, and in a day or two it disappeared. There was a quantity of very small grains of cork in the cylinder, as if the cork had been gnawed by the larva. I concluded, therefore, it had gone into the cork, and I reserved the cylinder to wait the result. The moth emerged June 21st. It seems possible from this that it may be the habit of the full-fed larva to burrow into the hawthorn stem.—HUGH COLQUHOUN, Anchorage, Bothwell, N.B.: June 24th, 1872.

Captures at Witherslack.—In the middle of May, I made my first journey to look for larvæ, and was tolerably successful. Owing to the weather being very unfavourable for collecting, only in some odd snug corner could I find any moths, and those sparingly—*Anchylopera obtusana* (new to the district), *Catoptria aspidiscana* (2), *Bucculatrix frangulella* and *crisatella*, and *Eupithecia lariciata*, being the best captures. Of larvæ, I got a fair lot of *Rhodophæa marmorella*, *Ephippiphora signatana*, *Teichobia Verhuellella*, *Depressaria Douglasella* (two only, on wild carrot; emerged 7th July. This larva makes quite a large white silken gallery, and totally different to any of the other *Depressaria* that I know of). I also found plenty of *Pterop. lithodactylus* on *Conyza squarrosa*, as well as *Ebulea crocealis* on the same plant, from which I have bred a fine series; on the golden rod *tephrodactylus* was feeding (although so late), and I got four larvæ. I found the larva of *R. marmorella* on white-thorn as well as on the sloe, but only on the bushes that had lichen and sheeps'-wool on them: the specimens are fine and large, and so are the specimens of *signatana*, owing no doubt to the very wet season; in fact, when collecting them, the sleet and snow came down fast. Of *Thera coniferata*, I only found a few, and they were very small.

My next journey was in the middle of June, and I came home with two days' work (one of them being 14 hours) well laden, having filled over 300 boxes, including 24 *Eupithecia distinctata*, a fine series of *Coccyx vacciniana*, *Phoxopteryx siculana*, *biarcuana*, *uncana*, *Coleophora Wilkinsonella*, *gryphipennella*, and *virgaurella*, *Elachista subobscurella* and *subochreella*, *Gracilaria hemidactylella* and *Coccyx coniferana*, *Bucculatrix aurimaculella*, *Dicrorampha plumbana*, a nice variety of *Emmelesia candidata*, *Aspilates strigillata* and *Nemoria viridata* still out and fine (two only, and I saw them at rest); and, strange to say, a fine *aspidiscana* out on the open heath: I thought it was a small *Pyrausta* by the flight, going along rapidly with the wind.

My last excursion was on Friday evening last (July 2nd). I went forward to Grange after a hard day's work in Manchester, and took, on my way to Witherslack, seven fine *signatana*, some *Argyresthia mendicella*, one *tephradactylus*, a few *osteodactylus*, &c. I was rather too late in the evening to get a chance at *Argyrolepis luridiana*. The next morning was glorious: before breakfast I took *Diplodoma marginepunctella* and *Glyphipteryx equitella*, and some *Butalis fuscoænella* and *Argyrolepis Baumanniana*. After breakfast, I set out for *Miana expolita* on Whitbarrow, but got among some *Elachista triseriatella*; I spent two or three hours creeping on my hands and knees, and secured a fine series. The setting is one of the most tedious jobs, as they are such delicate little things. Whilst employed in this fashion, I came across *Pt. parvidactylus* (very fine), *Elachista adscitella*, *Butalis fuscuprella*, and one solitary female *expolita* came and settled beside me (an outsider). I hastened on to the head quarters whilst the sun was up; no sooner had I got on the spot than down came the rain with very little warning; I hurriedly filled my net with thistle leaves to have a job whilst sheltering, and from them I got a score of larvæ of *Depressaria carduella*. A large *Sphinx* came among the *Sedum* on the rocks, but I could not make it out, as it would not let me get near enough; it looked like *lineata*. The rain now made me hurry away, and I got to the Inn (about three miles off) just in time, as the rain set in so heavily, and it blew such a wind, that all collecting was at end, and my best time (the evening) was done for. The next day rain, lightning, thunder, and no amendment to the hour I write. During an hour's lull, I got a bag-full of wild carrot, and found some larvæ of *Depressaria capreolella* feeding.—J. B. HODGKINSON, 15, Spring Bank, Preston: 8th July, 1872.

Dicrorampha consortana and *Retinia Buoliana* at Preston.—I have been in the habit of going 40 miles away to catch these insects. The former I took on the banks of the Ribble close by here, and the latter when walking in our public park, not half-a-mile away from my house. I got some shoots of *Pinus austriaca* and brought them home, and see five fine moths out to-day. I have bred a fine series of *D. consortana* from the shoots of the ox-eye daisy.—ID.

Eidophasia Messingiella near Wolverton.—On the 29th of June, being the only fine night we have had for some time, I went to a small swamp to hunt for *Tineæ*, and, amongst other species, I captured 20 *Eidophasia Messingiella*, several of them, however, were much worn.—W. THOMPSON, 163, Stantonbury, Wolverton, Bucks: July 1st, 1872.

Early appearance of Colias Edusa.—Considering that most *Lepidoptera* are so backward, it may be worth while noticing in the Magazine that I saw one very fresh *Colias Edusa* yesterday, at Folkestone (a male, I think), on the Railway Bank, and my friend, Mr. J. W. Gore, saw another on West Cliff.—THOS. H. BRIGGS, Lincoln's Inn : 24th June, 1872.

Early appearance of Triphæna subsequa.—In former years, *T. subsequa* has invariably followed *janthina*, *orbona*, and *fimbria*, never occurring with me before August.

None of the above three species have yet appeared, though, strange to say, I took a female *subsequa* last night at sugar. It was in admirable condition, having evidently just emerged.

I also noticed lately, hovering over *Ononis*, evidently depositing their eggs, many *H. marginata*; several taken with the net were, however, *passé*. *A. nebulosa*, *N. brunnea*, *E. lucipara*, and *A. ligustri* rare, and this year unusually abundant at sugar, and *N. conflua* is becoming common.—GEO. NORMAN, Cluny Hill, Forres : 7th July, 1872.

Note on the occurrence of rare Lepidoptera in the Isle of Man.—Referring to the announcement of the occurrence of rare *Lepidoptera* in the Isle of Man, in the last number of this Magazine, page 44, I believe most entomologists will join with me in desiring to know the details of their capture, especially as there are four species mentioned which have not been previously observed in the British islands; and I hope Mr. Hodgkinson will be kind enough to give your readers the benefit of any information he may possess.

I have no desire to criticise the somewhat novel method which Mr. Gregson has chosen for allowing a knowledge of the existence of these treasures to ooze out, because so great is the suspicion and doubt through which a new species has to make its way to public recognition, that a modest man may well shrink from facing it; but the mere mention by Mr. Hodgkinson that he saw certain insects in his friend's cabinet is not sufficient to justify their introduction into the list of native species.

I regret to say that the prevalent disbelief of statements as to the occurrence of new or even rare insects is more than justified by the frauds which have been perpetrated through the introduction into England of large numbers of continental *Lepidoptera* in the pupa state, which have been subsequently distributed as British, doing no small damage to science by rendering the real facts of the distribution and peculiarities of British insects almost impossible of attainment.—EDWIN BIRCHALL, Airedale Cliff, Newlay, near Leeds : July 13th, 1872.

The relationship between colour and edibility in larvæ.—The note on this subject by Mr. Doubleday in the last number of the Ent. Mo. Mag., p. 45, does not appear to me to tell against Mr. Wallace's explanation of the bright colours of caterpillars. The law discovered *à priori* by Mr. Wallace, and verified experimentally by Messrs. Jenner Weir and A. G. Butler, only amounts to the fact that brightly-coloured, hairy, and spinous larvæ are refused by a large number of insectivorous

birds, and this is all that is required for natural selection. The experiments of Mr. Weir, having been conducted on a certain number of species of birds, do not prove that the law holds good for *all* birds, any more than do the experiments of Mr. Butler prove that the law is true of *all other* insect persecutors. The larvæ of *Zygana* were rejected by Mr. Weir's birds.—R. MELDOLA, Brentford: *July 6th, 1872.*

Mimicry between spiders and flowers.—Yesterday, my wife noticed a lovely spider in the blossom of a single oleander. It was *white, beautifully striped with rose*, and closely resembled the inner part of the oleander flower. I once recorded (Ent. Mo. Mag., vol. ii, p. 14) a similar instance of resemblance between a spider and the flower of the ox-eye daisy in Nova Scotia, in connection with an analogous observation by a gentleman at the Cape of Good Hope.—B. PIFFARD, Nismes: *26th June, 1872.*

South London Entomological Society.—The Quarterly Meeting of this Society was held on the 19th of June, to elect the Officers and hear the Report read.

Mr. J. R. Wellman was elected President.

The Report stated that the list of Patrons is now complete. It contains the names of Sir John Lubbock, Bart., M.P., H. T. Stainton, Esq., Henry Doubleday, Esq., Edward Newman, Esq., R. M'Lachlan, Esq., and E. C. Rye, Esq.

Thanks were given to the Patrons for their support; also to Messrs. Jarvis, Newman, and Hardwicke for donations of books, to Mr. Norman for a loan to the library, and to several gentlemen who support the Society without deriving any benefit from it.

The objects of the Society have been furthered by the purchase of a few books for the library, and by the exhibition of numerous species of *Coleoptera* and *Lepidoptera*, also of preserved and living larvæ; and, in addition, three papers have been read before the Society.

The following exhibitions have been made: Mr. Wellman—*T. biundularia*, *N. Lucina*, and *Ang. prunaria*, a magnificent and varied series, bred from eggs. Mr. Cowley—*L. exigua*, captured at light in the City, April, 1872. Mr. Rochfort—*C. obliquaria* and *C. chamomillæ*, Wanstead, early in May. Mr. Boden—*Eup. lariciata* (a variety of?), Leith Hill in May; and others. Mr. Barrett—*B. roboraria*, larvæ and bred imagos from Brockenhurst; a curious bred variety of *N. bella* (?), larva found at Epsom in April; *A. rusticata*, bred from eggs; *R. formosella* and *H. nimbella*, Lewisham, June. Mr. Davis—*D. Orion* and *A. urticæ*, bred; *L. unita* and *P. unguicula*, Box Hill, May. Mr. Marsh—*Monotoma 4-foreolata*, Peckham, and *Emb. verbasci* (recently added Hemipteron), Deal. Mr. Champion—numerous rare and local *Coleoptera*. Mr. Hoey—*Eup. debiliata*, larvæ found at Leith Hill in the spring; and many preserved larvæ. Mr. Chaney—*B. consortaria*, *T. extersaria*, &c., Chatham, May. Mr. Williams—*N. lucina* and others, Tilgate, June; and many others.

ENTOMOLOGICAL SOCIETY OF LONDON: *1st July, 1872.*—Prof. J. O. WESTWOOD, M.A., F.L.S., President, in the Chair.

Lord Moreton was elected a Member.

Mr. Jenner Weir exhibited two examples of the rare *Agrotera nemoralis*, taken by him in Abbot's Wood, Sussex, on the 26th ult.

Mr. Meldola exhibited dwarf forms of *Anthocaris cardamines*, *Porthesia auriflua*, *Abraxas grossulariata*, &c.; a variety of *Venilia maculata* in which the black spots were entirely absent: and a specimen of *Leucania vitellina* taken at Brighton in 1869.

Prof. Westwood exhibited prettily banded cocoons of some species of *Ichneumonidae* from Ceylon, each of which was attached to a silken peduncle more than two inches in length. Also a tent-like covering formed by the larva of a lepidopterous insect in Ceylon by cutting out a large oval piece from a leaf of *Citrus*, beneath which it fed.

Mr. Müller exhibited pieces of the fronds of *Pteris aquilina* from Weybridge, illustrating the habits of the larvæ of three species of *Diptera*. (1) folded edges of the fronds produced by *Cecidomyia pteridis* (see Ent. Mo. Mag., vol. viii, p. 99); (2) mines of some species of *Muscidae* in the tips of the leaflets; (3) rolls at the apex of the fronds also produced by a species of *Muscidae*.

Mr. Dunning called attention to an article in 'Nature' for June 20th, 1872, by Mr. H. N. Moseley, respecting the sound produced by *Acherontia Atropos*. After passing in review the opinions published by various writers since the time of Réaumur, and stating that eleven different theories on the subject had been propounded, Mr. Moseley detailed his own experiments which convinced him of the correctness of Passerini's statement in 1828 as to the sound proceeding from the proboscis, and caused by the sudden expiration of air from a cavity within the head acted upon by elevating and depressing muscles, after the manner of bellows. Mr. Moseley concluded by observing that "It is most extraordinary that the seat of sound should ever have been imagined to be any where but in the head. It would seem as if many writers on the subject had commenced their observations with a determination to find some other seat for the cry."

Mr. Dunning further alluded to a letter by Dr. Leconte in the same journal for June 27th, respecting the parasite of the beaver upon which Prof. Westwood had founded his order *Achreioptera* (see Ent. Mo. Mag., vol. vi, p. 118), but which Herr Ritsema considered as pertaining to the sub-order *Aphaniptera*. Dr. Leconte dissented from both views, and transferred the insect to the *Coleoptera* as an aberrant family. Furthermore, he thought it probable that it was not a true parasite, but rather an inquiline, perhaps feeding upon epidermal scales. Prof. Westwood stated that he maintained his original opinion, and believed the creature had nothing to do with the *Coleoptera*.

Mr. W. A. Lewis placed before the meeting a copy of a circular (with signatures appended thereto) addressed to entomologists, urging them to ignore the reinstatement of forgotten or obsolete names until such time as the mode of dealing with these should be settled by a common agreement.

Prof. Westwood stated that he had recently published an article in which he suggested that a limitation of 20 years, such as regulates adverse claims to real property in England, might with advantage be adopted in disputed cases in zoological nomenclature.

The next Meeting, after the recess, will be on the 4th of November.

LIST OF BRITISH *DOLICHOPODIDÆ*.

BY G. H. VERRALL.

The *Dolichopodidæ* in the first volume of Walker's "Insecta Britannica" are perhaps more carefully described than is any other family in that work, owing principally to the attention which had been paid to them by the late Mr. Haliday; and, when revised by the elaborate criticism of Loew, in his "Neue Beitrage," v, they become very easy to name. The principal alterations in this list are the adoption of Loew's genera and arrangement, as proposed in the Monographs of North American *Diptera*, and the addition of a few new species. In Walker's work, 137 species and 15 genera were described; I now enumerate 154 species and 34 genera. Those species marked with an asterisk I require more information about, some of them having been originally described from British specimens, but not having been well distinguished.

HYGROCELEUTHUS, *Lw.*

diadema, *Hal.*
latipennis, *Fall.*

DOLICHOPUS, *Ltr.*

atripes, *Mg.*
phæopus, *Wlk.* (1851).
 montanus, *Lw.* (1871).
vitripennis, *Mg.*
atratus, *Mg.*
picipes, *Mg.* (1824).
 fastuosus, *Hal.* (1831).
lepidus, *Stæg.*
 picipes, *Wlk.* (1851).
campestris, *Mg.*
 fulgidus, *Zett.*
Fallenii, *Lw.*
 nigripes, *Fall. pt.*
melanopus, *Mg.*
planitarsis, *Fall.*
clavipes, *Hal.*
 fuscipes, *Hal.* ♀.
rupestris, *Hal.*
nubilis, *Mg.* (1824).
 inquinatus, *Hal.* (1831).
 var. Actæus, *Hal.* (1831).

claviger, *Stann.*
confusus, *Zett.*
discifer, *Stann.*
plumipes, *Scop.*
 pennitarsis, *Fall.*
Wahlbergii, *Zett.*
pennatus, *Mg.*
 signatus, *Zett., Lw., Schin.*
popularis, *W.*
signatus, *Mg.* (1824).
 argentifer, *Lw.* (1859).
urbanus, *Mg.*
acuticornis, *W.*
longicornis, *Stann.*
lineatocornis, *Zett.*
linearis, *Mg.*
nitidus, *Fall.* (1823).
 jucundus, *Hal.* (1833).
griseipennis, *Stann.* (1831).
 nitidus, *Hal.* (1831).
signifer, *Hal.*
 punctum, *Wlk.* [*nec Mg.*].
 pictipennis, *Whlbg.* (1850).
sabinus, *Hal.*
simplex, *Mg.* (1824).
 thalassinus, *Hal.* (1831).

virgultorum, *Wlk.*
 arbustorum, *Stann.*
 festivus, *Hal.*
 trivialis, *Hal.*
 ? agilis, *Mg.*
 brevipennis, *Mg.*
 equestris, *Hal.*
 æneus, *Deg.*
 ungulatus, Auct.

GYMNOPTERNUS, *Lw.*

nobilitatus, *L.*
 joco, Harris.
 ludicrus, Harris.
 principalis, *Lw.* (1861).
 civilis, Kov. (1868).
 nigricornis, *Mg.* (1824).
 gracilis, Stann. (1831).
 chærophylli, *Mg.*
 germanus, *W.*
 nigriplantis, *Stann.*
 nigripennis, *Fall.*
 atrovirens, *Lw.*
 cupreus, *Fall.*
 angustifrons, *Stæg.*
 celer, *Mg.* (1824).
 sarus, Hal. (1831).
 metallicus, *Stann.*
 ærosus, *Fall.*
 var. Dahlbomi, Zett.
 assimilis, *Stæg.*
 nanus, *Mcq.*
 parvilamellatus, *Mcq.*
 *prætextatus, *Hal.*

TACHYTRECHUS, *Stann.*

notatus, *Stann.* (1831).
 plumipes, Hal. (1831).
 litoreus, Hal. (1833).
 consobrinus, *Wlk.* (1851).
 plumipes, Mg. (1824) [*nec Fall.*].
 insignis, *Stann.*

ORTHOCHILE, *Ltr.*

nigrocærulea, *Ltr.*
 Walkerii, Rond. ?

HERCOSTOMUS, *Lw.*

fulvicaudis, *Wlk.*

HYPOPHYLLUS, *Lw.*

discipes, *Ahr.*
 obscurellus, *Mg.*
 cretifer, *Wlk.* (1849).
 alutifer, Wlk. (1851).

ANEPSIUS, *Lw.*

flaviventris, *Mg.*

ARGYRA, *Mcq.*

diaphana, *F.* (1787).
 versicolor, Mg. (1824).
 hirtipes, Curt. (1835).
 confinis, *Zett.*
 argentina, *Mg.*
 semiargentella, Don.
 argentata, *Mcq.*
 leucocephala, *Mg.* (1824).
 fulgens, Hal. (1831).
 elongata, *Zett.*

SYNTORMON, *Lw.*

Zelleri, *Lw.*
 denticulatum, *Zett.*
 pumilum, *Mg.*
 tarsatum, *Fall.*

SYNARTHURUS, *Lw.*PLECTROPUS, *Hal.*

pallipes, *F.* (1794).
 ? decoratus, Hal. (1831).
 monilis, *Wlk.*

RHAPHIUM, *Mg.*

longicorne, *Fall.*

XIPHANDRIUM, *Lw.*

fissum, *Lw.*
 caliginosum, *Mg.* (1824).
 macrocerum, Mg. (1824).
 monotrichum, *Lw.* (1850).
 macrocerum, Zett. (1849).
 caliginosum, Hal. (1831).
 appendiculatum, *Zett.* (1849).
 cupreum, Wlk. (1851) [*? Mcq.*].
 macrocerum, Curt. (1835).
 brevicorne, *Curt.* (1835).
 dissectum, Lw. (1850).
 fasciatum, *Mg.*

PORPHYROPS, *Mg.**PERITHINUS, Hal.*antennatus, *Carl.*spinicoxus, *Lw.* (1850).*communis, Wlk.* (1851) [*? Mg.*].fascipes, *Mg.* (1824).*insulsus, Hal.* (1831).nemorum, *Mg.*pectinatus, *Lw.*consobrinus, *Zett.* (1843).*fulvipes, Wlk.* (1851) [*? Mg.*].*rufipes, Hal.* (1833) [*? Mg.*].*riparius, Hal.* (1831) [*nec Mg.*].elegantulus, *Mg.* (1824).*Wilsoni, Curt.* (1835).crassipes, *Mg.*gravipes, *Wlk.*MACHERIUM, *Hal.**SMILIOTUS, Lw.*maritimæ, *Hal.*APHROSYLUS, *Wlk.*raptor, *Wlk.*celtiber, *Hal.*ferox, *Wlk.*THINOPHILUS, *Whlbg.*flavipalpis, *Zett.*ruficornis, *Hal.*versutus, *Wlk.*LEUCOSTOLA, *Lw.*vestita, *W.*EUTARSUS, *Lw.*aulicus, *Mg.*DIAPHORUS, *Mg.*nigricans, *Mg.* (1824).*obscorellus, Zett.* (1843).oculatus, *Fall.* (1823).*flavocinctus, Mg.* (1824).Winthemi, *Mg.*CHRYSOTUS, *Mg.*cupreus, *Mcq.*læsus, *W.*neglectus, *W.* (1817).*femoralis, Mg.* (1824).*viridulus, Fall.* (1823).gramineus, *Fall.* (1823).*copiosus, Mg.* (1824).TEUCHOPHORUS, *Lw.*spinigerellus, *Zett.* (1843).*flavicoxa, Mg.?* (1824).calcaratus, *Mcq.*SYMPYCNUM, *Lw.*cirrhipes, *Wlk.*annulipes, *Mg.* (1824).*pulicarius, Wlk.* (1851) [*? Fall.*].CAMPSICNEMUS, *Wlk.**CAMPTOSCELES, Hal.*scambus, *Fall.* (1823).*prodromus, Mg.* (1824).curvipes, *Fall.*loripes, *Fall.*armatus, *Zett.**prodromus, Hal.* (1831) [*nec Mg.*].pusillus, *Mg.*alpinus, *Hal.*LIANCALUS, *Lw.*virens, *Scop.* (1763).*regius, F.* (1805).*formosus, Hal.* (1831)lacustris, *Scop.*SCELLUS, *Lw.*notatus, *F.*HYDROPHORUS, *Whlbg.*nebulosus, *Fall.* (1823).*conspersus, Hal.* (1831).bipunctatus, *Lehm.*borealis, *Lw.* (1857).*binotatus, Zett.* (1849).balticus, *Mg.*litorceus, *Fall.*

viridis, *Mg.* (1824).

præcox, *Wlk.* (1851) [*nec Lehm.*].

bisetus, *Lw.* (1857).

inæqualipes, *Wlk.* (1851) [*nec Mcq.*].

ACHALCUS, *Lw.*

cinereus, *Wlk.* (1851).

pygmæus, *Zett.* (1855).

flavicollis, *Mg.*

MEDETERUS, *Fisch.*

Jaculus, *Fall.*

truncorum, *Mg.*

diadema, *L.*

tristis, *Zett.*

*muralis, *Mg.*

THRYPTICUS, *Gerst.*

bellus, *Lw.*

CHRYBOTIMUS, *Lw.*

molliculus, *Fall.*

concinus, *Zett.*

XANTHOCHLORUS, *Lw.*

LEPTOPUS, *Hal.*

ornatus, *Hal.*

tenellus, *W.*

*bicolorellus, *Zett.*

NEURIGONA, *Rond.*

SAUCROPUS, *Lw.*

pallida, *Fall.*

suturalis, *Fall.*

quadrifasciata, *F.*

*Erichsonii, *Zett.*

PSILOPUS, *Mg.*

PSILOPODIUS, *Rond.*

platypterus, *F.*

Wiedemanni, *Fall.*

longulus, *Fall.* (1823).

lugens, *Mg.* (1824).

*obscurus, *Mg.*

lætus, *Mg.*

contristans, *W.*

The Mulberries, Denmark Hill, S.E.: *July*, 1872.

DESCRIPTIONS OF A NEW GENUS AND FIVE NEW SPECIES OF EXOTIC PSOCIDÆ.

BY R. M' LACHLAN, F.L.S.

This paper may be looked upon as a continuation of one by me published in the *Trans. Ent. Soc. Lond.*, ser. 3, vol. v, pp. 345—352 (1866). Having recently had a number of species from Ceylon (sent by Mr. Thwaites to Prof. Westwood) placed in my hands for determination, I decided upon describing some new forms among them, and including, with these, others from my own collection. All the species are from the Asiatic continent or islands. An outline figure of the neururation of the new genus is added; and it is very desirable that the whole of the described genera should be treated in this way, for I know by experience how difficult it is for a student commencing an investigation of the *Psocidæ* to follow descriptions of the neural characters without the aid of figures.

One word of advice to collectors,—*do not card Psocidæ*; such a practice entails double labour upon him who has to determine them, as the neururation can only be traced with difficulty in carded specimens.

PSOCUS 5-PUNCTATUS, n. sp.

P. rufescens? (*Corporis colores incertæ*). *Alæ hyalinæ*: *antica fasciâ interruptâ obliquâ paullo ante medium, nebula in pterostigmate et in cellulâ discoidali, punctisque quinque in cellulis apicalibus, griseis*; *pterostigmate elongato-triangulari*; *venis fuscis, discalibus nonnullis pallidis*: *posticæ hyalinæ, immaculatæ, venis fusciscentibus*.

Exp. alar. 5 lin. (= 10 mill.).

Hab.: Ceylon (*Thwaites*). In Mus. Oxon.

The specimen is flattened and mounted in balsam, hence the colours of the body, &c., are uncertain. The species is decidedly allied to the European *P. 6-punctatus*, Linn.; it may also, probably, have some affinity with the Ceylonese *P. circularis*, Hag., which, however, is much smaller.

PSOCUS CLARUS, n. sp.

P. albidus. *Antennæ nigrae, nigro-pilosæ*; *articulis duobus basalibus albidis*. *Oculi nigri, lute nigro-cincti*. *Palpi pedesque albid*, *hi articulo ultimo tarsorum fusciscenti*. *Thorax maculis quinque nigris, nitidis, ornatus*. *Abdomen vix fusciscentis*. *Alæ hyalinæ, immaculatæ, elongatæ*: *antica pterostigmate valde elongato, lineari, vix flavido-tincto*; *venis marginibusque nigris*.

Exp. alar. 5½ lin. (= 11¼ mill.).

Hab.: Ceylon (*Thwaites*). In Mus. Oxon.

Evidently allied to *P. elongatus*, Hag., from the same island. Differs in its paler colour, in its uniformly pale mouth and palpi, the wholly pale legs (excepting the apical joint of the tarsi), the five black spots (one on each lobe) of the thorax, &c. Owing to the elongate anterior wings, the discoidal cell appears to be placed very near the base. The margins and most of the veins appear to be somewhat thickened, and hence conspicuously black.

PSOCUS MALAYANUS, n. sp.

P. pallide flavo-griseus. *Antennæ alis longiores, nigrae, nigro-pilosæ*; *articulis duobus basalibus omnino, 3º (ad apicem excepto), 4º—6º ad basin, flavidis*. *Palpi articulo ultimo fusciscenti*. *Caput infra oculos macula triangulari fusca signatum*. *Thorax maculis*

quinque nigris ornatus. Pedes pallide flavidi, tarsi ad apicem fusciscentibus; femoribus posticis extus obsolete fusco-lineatis. Alæ hyalinæ, immaculatæ, elongatæ: anticæ pterostigmate valde elongato, lineare, pallide fumato; venis marginibusque fuscis.

Exp. alar. $5\frac{1}{2}$ lin. (= 11 mill.).

Hab.: Sula (Wallace). In Mus. auct.

Also allied to *P. elongatus*, but differing from it, as does *P. clarus*, by the paler colour of the body, and the distribution of the dark markings of the legs, head, &c. Apparently more closely allied to *elongatus* than to *clarus*. I possess four examples.

NOTE 1:—*Psocus cosmopterus*, McLach., Trans. Ent. Soc. 3 ser., vol. v, p. 350, can only be regarded as identical with *P. taprobanes*, Hag., of which it is a slight local modification. I have it also from Bengal, and it is probably distributed throughout the East.

NOTE 2:—*Psocus longicornis*, Fab. Four examples (1 ♂, 3 ♀) taken by Capt. Lang at Masuri, North India (7000 feet), in June, do not appear to differ in any way from European specimens, thus indicating a very wide range, which it is probable is the rule with the majority of the species of *Psocidæ*.

CÆCILUS PICTIPENNIS, n. sp.

C. niger. Antennæ pallide flavide, graciles. Caput rufescens; labro nigricante. Thorax niger, suturis albidis. Abdomen nigricans. Pedes albi; tarsorum articulo ultimo fusciscenti. Alæ anticæ ad apicem ellipticæ; dimidio fere basali nigro, nitido, albo-guttato, dimidio apicali hyalino; fasciâ sub-pterostigmaticali, limboque apicali fasciæ ad marginem inferiorem conjuncto, testaceis; pterostigmate elongato, sublineare, intus nigro-notato; cellulâ liberâ marginali semi-circulari; venis in dimidio basali nigris, apicali pallidis: posticæ dimidio basali fumato, apicali hyalino.

Exp. alar. $3\frac{1}{4}$ lin. (= $6\frac{1}{2}$ mill.).

Hab.: Ceylon (Thwaites). In Mus. Oxon.

Quite distinct from any species yet described.

AMPHIPSOCUS, n. g.

Characteres fere ut in Cæcilio; sed pterostigma venam abbreviatam, haud venæ furcatæ conjunctam, emittit.

The foregoing brief diagnosis indicates that the species upon which I have founded this new genus is in some respects intermediate

between *Cecilius* and *Stenopsocus*. With the former of these it agrees in its open discoidal cell, and the arrangement of the posterior marginal cellules, but differs in the abbreviated transverse vein from the lower angle of the pterostigma (indicated by *a* in the figure) ending abruptly in the membrane about half-way towards the forked vein beneath it, thus indicating some affinity with *Stenopsocus*, in which this sub-pterostigmatal vein is continuous; but the latter genus has a closed discoidal cell. The tarsi are 2-jointed.



Psocus palliatus, Hagen, which is at present unknown to me, has a similar abbreviated sub-pterostigmatal vein, but a closed discoidal cell. It probably forms the type of another genus.

AMPHIPSOCUS PILOSUS, n. sp.

A. griseo-albidus. *Antennæ pallide flavidæ, valde pilosæ. Caput plerumque rosaceo-suffusum, maculâ intense rosaceâ pone oculos signatum. Oculi ♂ modices, ♀ parvi. Palpi pallidi, articulo ultimo nigro-terminato. Mesothorax hirsutus, maculis nigris magnis tribus ornatus. Metathorax utrinque fusco-signatus. Abdomen griseo-flavidum, rosaceo vel purpureo-maculatum (colores mutati). Pedes pallidi, valde pilosi; tibiis nigro-punctatis. Alæ hyalinæ: anticæ elongato-ovales, ad apicem dilatatæ ac fere semicirculares; venis longe pilosis, plerumque flavidis, nonnullis nigris, apicem versus paullo flexuosis; cellulâ liberâ marginali triangulari; pterostigmate elongato-triangulari, rosaceo-suffuso, puncto nigro interiori signato.*

Exp. alar. $4\frac{1}{2}$ lin. (= 9 mill.).

Hab.:—Northern India. In Mus. auct.

I have five examples of this pretty species, three of which were taken by Capt. A. M. Lang at Masuri, in the month of June.

NOTE 3:—A type specimen of *Psocus chloroticus*, Hag., shown to me by Baron de Selys Longchamps, has a decidedly different neururation to that of *Psocus* (as restricted), there being a closed discoidal cell, but only three marginal cellules instead of four: it will form a new genus. (*Hemipsocus Selys*)

NOTE 4:—The type of the insect described by Rambur as *Psocus pedicularius* is very curious, and has nothing whatever to do with the Linnean species of that name (*binotatus*, Rambur).

It is probably exotic, having been introduced with plants, or by some other means. The tarsi are 3-jointed; two complete marginal sub-apical cellules, an elongate free cellule, and behind this (nearer the base) a supernumerary cellule. Certainly forms the type of another new genus. (*Psocodiprion July*).

NOTE 5:—*Psocus roseus*, Hagen, is placed by him, in his 'Psocinorum synopsis synonymica,' in the restricted genus *Psocus*. This is an error, according to a drawing sent by him to me in 1866. It should be placed in *Epipsocus*.

Lewisham: *July*, 1872.

MIMICRY IN THE COLORS OF INSECTS.*

BY DR. H. A. HAGEN.

Having observed that in treating of the interesting phenomena of mimicry, writers have used indiscriminately very different factors, I shall try to give some preliminary ideas which I do not find published, and which I believe will be useful in explaining this interesting subject.

It will be best to consider the color and pattern separately. There are three different kinds of colors: viz., colors produced by interference of light, colors of the epidermis, and colors of the hypodermis. All three may either be wanting, or all three, or two of them may occur together in the same place.

Colors produced by interference are produced in two different ways; first by thin superposed lamellæ, as in the wings of *Diptera*, *Neuroptera*, &c., without any other color, as in hyaline wings, or connected with other colors as in the scales of *Entimus* and others.

There must be at least two superposed lamellæ to bring out colors by interference, and there cannot be more than four, as both wings and scales consist only of four layers, two internal belonging to the hypodermis, two external belonging to the epidermis. In fact, if scales taken from dry specimens of *Entimus* are observed under the microscope, many partly injured can be found, which give different colors according to the layers of the lamellæ which remain.

Secondly, colors by interference are produced by many very fine lines or striæ in very near juxtaposition, as in *Apatura* and other color-changing insects. Colors by interference may perhaps be sometimes also produced in the same way as in the feathers of the dove's neck, by very small impressions situated near together.

* This article is reprinted from the 'American Naturalist' for July, 1872, pp. 388-393. The MS. copy was kindly sent to me by the author for publication in this Magazine; but the reprint is here given, because the Amer. Nat. probably had the benefit of the author's personal corrections for press.—R. McLACHLAN.

The colors produced by the interference of light are only optical phenomena, differing in this respect from the other colors of the body, the epidermal and hypodermal colors.

The epidermal colors belong to the pigment deposited in the cells of the chitinized external skin, the epidermis. These colors are mostly metallic blue, green, bronze, golden, silver, black, brown, and perhaps more rarely red. The epidermal colors are very easily recognized, because they are persistent, never becoming obliterated or changed after death.

The hypodermal colors are situated in the non-chitinized and soft layer, called hypodermis by Weismann. They are mostly brighter and lighter, light blue or green, yellow, milk white, orange, and all the shades between. The hypodermal colors *in the body* of the insect fade or change, or are obliterated after the death of the insect. A fresh or living insect when opened may easily be deprived of the hypodermal colors simply by the action of a little brush. I said hypodermal colors in the body, because there are hypodermal colors which are better protected, being encased nearly air-tight, and therefore are more easily preserved even after the death of the insect. I refer to the colors in the elytra and wings, and in their appendages, the scales. The elytra and the wings are, as is well known, at first open sacs in communication with the body, of which they are only the extension: of course they are formed of the epidermis and hypodermis which become so strongly glued together after the transformation into the imago state that a maceration of years tried by me showed no effect at all on such wings. This fact is very interesting, as it explains how wings, and even colored wings, can be found in palæontological layers in good preservation. The destruction of insects, which is so peculiar to the secondary strata in England, proves, as I believe, that the bodies of the insects must have floated a very long time before they were deposited. It is quite a rarity to find well preserved insects there, although many very well preserved wings even of lace-winged flies have been described.

There is an interval after the transformation before the membranes of the wings become inseparably glued together; it is at this time that the finishing of the colors takes place. For instance in an *Æschna*, a *Libellula depressa* or *trimaculata*, if the wing is cut off at the base, the two layers can be easily separated by manipulation under water, and the wing can be inflated with a little tube by separating the borders with a knife. I can show specimens so prepared.

But this is only possible as long as the wings possess the appearance of having been dipped into mucilage, an appearance which is well known in young *Odonata*.

The scales have just the same development as the wings. At first they are little open sacs, communicating with the hollow of the wing and the whole body, and at a later period are glued together like the wings themselves.

In the wings and in the scales the hypodermal colors are formed and finished before the wings stick together, and by this means they are well preserved and safely encased. They have no more communication in the glued parts with the interior of the animal, and are preserved in the same way, as if hermetically inclosed in a glass tube. There are even here in the wings and scales many epidermal colors, chiefly the metallic ones; but all the brighter colors (for instance the somewhat transparent spots in the elytra of the *Lampyridæ*, *Cicindelidæ*, &c., and in the greater number of *Lepidoptera*) are, as I believe, hypodermal colors.

Finally, there sometimes occurs outside of the animal, that is, on the epidermis, a kind of color which I consider as hypodermal color, such as the pale blue on the abdomen of many *Odonata*, the white on the outside of many *Hemiptera*, the pale gray on the elytra and thorax of the *Goliathus* beetle, the powder on *Lixus* and others. Some of these colors are very easily resolved in ether, and are apparently a kind of wax. I believe that these colors are produced by the hypodermis and are exuded through the little channels of the pores (*Poren Canäle*).

The hypodermal colors are very often different in males and females of the same species, the epidermal colors rarely differ so far as I know; but there are genera with prominent epidermal colors which are nearly always different in different sexes, viz., *Calopteryx*, *Lestes*, some *Hymenoptera*, &c.

It would be interesting to know the different colors of the epidermis in such cases. So far as I know the change seems to be between related and not between complementary colors. But my observations are far from having any conclusive importance. The same investigation would be necessary for the hypodermal colors.

The hypodermal colors may change or be altered in some way in a male or female during its lifetime, by sexual or other influences. The epidermal colors never change. By sexual influences yellow is changed into orange, brown into red, and even sometimes more changed. By other influences, for instance by cold in hibernation,

pale yellow is changed into red (*Chrysopa*). The hypodermal colors can be changed even by a voluntary act of the animal, and the new colors disappear again (*Cassida*). The hypodermal colours are the only ones on which the animal has any influence either involuntarily by the action of the nutritive fluid or voluntarily. The epidermal cells are placed entirely outside of any influences of the animal, when once established. It will perhaps be possible to prove that the so-called mimetic colors are all hypodermal colors.

The hypodermal colors seem to be produced by a photographic process (I know no better expression), the epidermal colors by a chemical process of combustion or oxidation. Would it be possible to prove that by a photographic process even the colors of the surrounding world could be transmitted, a great step towards an undertaking of the phenomena would be given. The fact of course is very probable, at least in some instances.

In observing the mimicry, the pattern of an insect must be clearly separated from the color. In fact the pattern is not the product of an accidental circumstance, but apparently the product of a certain law, or rather the consequence of certain actions or events in the interior of the animal and in its development. The proof is very easily afforded by the regularity of the pattern in a genus, or a family of insects. If studied carefully and comparatively the pattern in a genus is the same or is only more or less elaborated. The number of such families is so exceedingly great that some example will readily occur to every one.

Moreover, a certain and constant pattern can be found for the head, a different pattern for the segments of the thorax, and a different pattern for the segments of the abdomen. This pattern is in the different segments of the abdomen (*Hymenoptera*, *Diptera*, *Neuroptera*, *Orthoptera*) always the same, only more or less elaborated, and less finished in the first and last segments. In some way, the same is true for the thoracic segments.

In some few instances, I was able to observe how the pattern is produced. In the *Odonata* (Dragon flies), at the moment of transformation, the thorax is transparent, and shows no colors at all. At this time, the muscles are without importance, and in process of formation. The thoracic muscles, as is well known, are, in the *Odonata*, very powerful, and also very extraordinary as regards the shape of their tendons. Just along outside the muscles are dark lines more or less well finished, and resulting from the action of the *μα σπο* *Ithia irritatio, ibi affluxus*. I believe that it would not be unat there is a

to conclude that a powerful action in the development of the muscles is in such a case the cause of a greater combustion or oxidation in the neighboring parts. In fact, on the head of a *Cicada*, on the abdomen of an *Æschna*, we find similar patterns, in some way mostly representing the underlying muscles. In the *Gomphina*, the fact is striking, and far more, as the stronger species mostly possess a large dark pattern. There are some very small species which are almost entirely yellow; there are no small species entirely black.

Should the fact, with the explanation, be admitted, a step farther in the explanation of the different patterns would be made. I know very well that in the *Odonata* there are patterns which do not agree with my explanations, even some contrary to it, but if some certain facts be explained, there are perhaps more factors still unknown or unobserved. The explanation given for certain facts would still be admissible, or at least not entirely objectionable.*

The patterns on the wings and elytra could not be the product of the action of muscles, but I believe it to be probable that the sudden rush of blood or even air, by the accelerated circulation and respiration in the act of transformation may have the same effect. In this way some patterns, otherwise not explicable, could be understood. The eye-spots in the caterpillars of some *Papilionidæ* have been ascertained by Leydig to be epidermal colors, and I believe that the various kinds of eye-spots in the wings of the imago are also epidermal colors. If a stream of blood meet a small obstacle just in the centre, a funnel is formed; if this obstacle be a ring, and behind it another obstacle, we have two or more funnels, one in the other, and the section of them will be circular or elliptical according to the angle at which they reach the surfaces. Such patterns in the elytra and wings are formed or preformed at the time when the wing is a sac; sometimes before the transformation, and here is another circum-

* So far as I know the literature relating to the phenomena of mimicry, all these related differences are often confused, and I believe that in separating them, and following the views above given, many facts would be better understood, and this interesting subject more easily advanced.

Besides all the difficulties which oppose a clear and correct view, there is one more which I do not find mentioned, i. e. the so-called color-blindness and the different degrees of it. Prof. B. A. Gould, in his excellent work 'Investigations on Anthropological Statistics of American Soldiers,' has given attention to it in a very remarkable chapter. "Persons who cannot distinguish ripe cherries upon the tree, or strawberries on the vine, by their color are far more numerous than would be suspected. Serious misunderstandings and even calamities have been reported in the army, resulting from mistakes in the color of green and red light by officers of the signal corps." He gives the statement that usually one in twenty, and in the soldiers examined one in fifty, was subjected to color-blindness. But these numbers show only the extremes, and it is easy to believe that a much greater number are more or less affected with it. In fact, we have no means of measuring this physiological difference: if two persons call something green, and even compare the color with certain known objects, there is no proof at all that they see just the same color. I think, at it would be prudent, in describing cases of mimicry, especially when they are *intended* to forget that even the best observer may be unaware of this infirmity, and in *criticisms* on color-blindness always state that the greater number of persons have changed. By *infirmity*.—H. A. H.

stance which explains some patterns. The walls of the sac are suddenly augmented and strongly dilated in the transformation. Small patterns preformed in the sac will also be altered and enlarged by the same process, and I know that many patterns of Lepidopterous wings are in such a way very easily explained. All the waved lines of the wings and other marks belong here, and as the ribs or nervures seem to grow faster in transformation, the waved appearance would be explained. In fact the greater part of the patterns seem to be produced by expansions or distraction of the pattern preformed in the wing at some period before the transformation.

Cambridge, Massachusetts.

DESCRIPTIONS OF SEVEN NEW EXOTIC RHOPALOCERA.

BY W. C. HEWITSON, F.L.S.

(*Heliconidæ*).

CLYRAS TRANSLUCENS.

Upper-side. ♂: transparent white, tinted with yellow near the base; the nervures black, the margins dark brown, broad on the outer margin of the posterior wing. Anterior wing with a minute white spot on the costal margin at the end of the cell; the second median nervule thickened as it approaches the outer margin.

Under-side as above, except that there are some minute indistinct white spots on the outer margin near the apex and anal angle of the anterior wing, and a sub-marginal series of distinct white spots in pairs on the posterior wing. Antennæ orange, with the base black.

Exp. $3\frac{1}{2}$ inch. Hab. Ecuador (Buckley).

This and the five following spp. are in my own collection.

HELICONIA CHOARINA.

Upper-side black. Anterior wing tinted with blue, with an irradiated ray of white from the base; crossed beyond the middle by a curved irregular band of eight white spots, and by a sub-marginal band of white spots. Posterior wing crossed beyond the middle by a broad band of eight yellow and white spots, and by a sub-marginal band of eight small white spots in pairs between the middle of the wing and the anal angle.

Under-side as above, except that it is rufous-brown, that the ray from the base of the wings is broader, and has below it a spot which is attached to the last spot of the central band, and that there is a

marginal series of white spots in pairs; also that the posterior wing has the base of the costal margin white, and is crossed before the middle by a transverse band of the same colour.

Exp. $3\frac{3}{10}$ inch. Hab. Ecuador (Buckley).

This adds a third species to that small and very rare group represented by *H. Hecuba* and *Cassandra* which so much resemble *Tithorea*, *Humboldtii* and *Bonplandi*. It is most nearly allied to *Cassandra*.

(*Nymphalidæ*).

DIADEMA RUHAMA.

Upper-side. ♂: dark brown. Anterior wing rufous at the base, marked by eight black spots, six of which are within the cell; crossed from the costal margin beyond its middle to near the anal angle by an irregular, narrow, oblique band of rufous-orange, broken into spots below the median nervule. Posterior wing rufous, marked near the base by nine or ten black spots: the nervures and lines between them black: the outer margin dark brown.

Under-side as above.

Exp. $3\frac{1}{10}$ inch. Hab. Angola.

Allied to *D. Eurytus* and *Dolomena*: the anterior wings, however, are much narrower, with the outer margin sinuated;—in fact, more like an *Acræa*, and nearly resembling fig. 28 of *A. Euryta* in my 'Exotic Butterflies.'

(*Satyridæ*).

DEBIS DELIADES.

Upper-side white. Anterior wing with the costal margin from the base to the middle, the whole of the cell and a little beyond it, a triangular spot between the first and second median nervures near their base, the apex (where it is broad, and marked on the costal margin by a small trifold white spot and two small black ocelli, each dotted with white) and the outer margin (where it is deeply sinuated on the inner border) and a round spot near the anal angle, all dark rufous-brown: a sub-marginal line of dark brown. Posterior wing crossed beyond the middle by a series of seven blind ocelli: the first, second, third and fourth large, the others small: a sub-marginal series of lunular brown spots: the outer margin rufous-yellow, bordered on both sides with black.

Under-side as above, except that the anterior wing is nearly white, the spots on the upper-side being scarcely visible; that the posterior wing has perfect black ocelli, each with a white centre and rufous iris, and that the sub-marginal lunular spots are also rufous.

Exp. $2\frac{3}{10}$ inch. Hab. Darjeling (Roberts).

This is a remarkable species, and cannot be compared in colour with any other butterfly.

DEBIS DOLOPES.

Upper-side. ♀: rufous-brown. Anterior wing crossed from the costal margin beyond its middle to a little above the anal angle by a band of paler colour, straight until it reaches the sub-median nervule, where it makes an angle inwards. Posterior wing tailed: crossed by a sub-marginal band of five blind black ocelli bordered with dull yellow, the middle ocellus much smaller than the rest.

Under-side. Both wings rufous-brown to beyond the middle, crossed by a continuous common band of dark brown bordered outwardly by lilac-white, the margin of the brown sharp and well defined: the wing beyond it rufous-white. Anterior wing with four scarcely visible ocelli: posterior wing with seven ocelli, which are small and black, each with a white centre and yellow iris bordered with brown, the first and fifth largest.

Exp. $2\frac{1}{2}$ inch. Hab. Darjeling (Roberts).

LASIOMMATA LYRNESSA.

Upper-side. ♂: dark rufous-brown; the ocelli of the under-side very indistinctly visible.

Under-side dark rufous-brown, crossed beyond the middle by a transverse band from the costal margin to near the anal angle, at first narrow and white, afterwards broad and rufous; a sub-apical ocellus with white centre and rufous iris: a sub-marginal black line. Posterior wing crossed from the apex to the anal angle by an indistinct straight band of white with three ocelli above it, two (scarcely visible) near the costal margin, one (larger) near the anal angle, all centred with white and with rufous irides, the larger ocellus bordered with dark brown and again with paler colour, and above it an arched band of brown.

Exp. 2 inches. Hab. New Caledonia.

(*Lycænidæ*).

IOLAUS INORES.

Upper-side. ♂: body and wings of a brilliant cerulean blue. Anterior wing with the space from the end of the cell to the apex and costal margin and bounded below by the second median nervule, black. Posterior wing with two tails.

Under-side brown. Anterior wing cerulean blue from the second median nervule to the inner margin, which has a fringe of long black hairs. Posterior wing with a very indistinct sub-marginal band of linear, lunular spots margined outwardly near the anal angle by paler colour: a black spot crowned with orange near the base of the tails, a similar black spot at the anal angle crowned with pale blue: the space between the spots irrorated with blue.

Exp. $1\frac{6}{10}$ inch. Hab. unknown.

This beautiful species has been kindly lent to me by Mr. Druce, to be figured in the next part of the "*Lycænidæ*."

Oatlands, Weybridge: August, 1872.

Change of Nomenclature.—The genus *Phlæophilus* (script. *Phloiophilus* in error) of Stephens, of which the British *Edwardsii* apparently remains the sole exponent, having been published in Illustr. Mandib. iii, 1830, is three years anterior in date to *Phlæophilus* (*Anthrribidæ*), characterized in Schönherr's Curc. i, p. 156, 1833. The latter must, therefore, be re-named, and I propose to call it *Lemmophilus*,—a word of the same signification.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: August, 1872.

Notes on captures of Coleoptera in the New Forest.—At the risk of repetition, I send a few notes on the *Coleoptera* observed, during a fortnight's stay at Brockenhurst, from the middle of June to the beginning of July, in company with my friend, Mr. J. S. Allin, thinking that, although nothing very rare occurred to us, they might prove interesting to some of the readers of the Magazine.

I again found most of the species recorded by me in E. M. M., vol. viii, p. 85, but failed to obtain more *Emus* or *Colydium* (my principal quests), not for want of looking; but several other species occurred that I had not observed in my previous visits.

I could not come across any oaks fit to work, in spite of tramping many miles; and, to this, I suppose must be attributed, the absence of the better oak feeding species from my not very extensive list; nor could I find any good *Cossus*-infected trees.

Stalking flowers, day after day, failed to produce *Anthaxia*: I suppose we were too late for it.

All the wood we could find to work at were two young dead beech trees (which were very productive), a few logs occasionally, and the usual "moors" or stumps.

Felled trees are not left about for years on the ground (the woodmen tell me) as they used to be some years back, in Turner's time; consequently beetles are difficult to obtain; in fact, two or three hard days' work in the forest produced almost *nil*.

The better species we found I note below:—

Notiophilus rufipes; *Pterostichus lepidus* (rarely) and *dimidiatus* (pretty commonly) in sand-pits. *Calosoma inquisitor*, on old sugar; *Cychrus rostratus*, swept up; *Homalota elegantula*, Bris., one specimen swept off fern towards evening; *Mycetoporus clavicornis*, by evening sweeping; *Philonthus splendidulus*, tolerably common under bark and in rotten wood; *Stenus lustrator*, two or three specimens

swept off fern; *Protinus atomarius*, by evening sweeping; *Euplectus Dennyi*, rarely, under bark; *Scydmaenus exilis*, under bark; *S. denticornis* and *angulatus*, by evening sweeping; *Amphicyllus globus*, with one specimen of a small pale unicolorous variety, by evening sweeping: *Liodes orbicularis*, two or three by evening sweeping; *Anisotoma nigrita*, usually somewhat rare (seen alive for the first time here by me) seemed generally distributed over the forest, and not rare, as by sweeping from sunset till dusk, in the rides of the plantations, we managed by hard work to secure a good number, generally about a dozen in the two or three hours we worked for it of an evening, and it was far commoner than *calcarata*. *A. dubia* and *litura* and *Cyrtusa paucilla* (*minuta*, W. C.) also occurred sparingly. *Colon brunneum*, a few, in company with the *Anisotomæ*; *Phalacrus substriatus*, one specimen, swept up; *Meligethes pedicularius*, which seems to be the commonest species of the genus (except, of course, *rufipes*, *æneus* and *picipes*) in the New Forest, as it occurred freely by sweeping in the rides of the enclosures; *M. umbrosus*, *Ips ferrugineus*, *Rhizophagus cribratus*; *Thymalus*, tolerably common in its usual habitats. *Synchita mediolanensis* again occurred sparingly, under the bark of a small standing but dead beech tree. *Læmophlæus bimaculatus*, two or three, *Lathridius carbonarius*, a few, and *Diplocælus fagi*. The latter species (seen by me alive for the first time) occurred in quantity, in company with the three preceding species, under beech bark, apparently preferring the looser part, especially near the ground. *Trachys troglodytes*, one specimen, by casual sweeping; *Microrhagus pygmaeus*, a few specimens by sweeping fern, &c.;—one little patch of long grass invariably producing it. *Eloter elongatulus*; I swept up, off fern, a single ♀ example, which sex is very much larger than ♂, and apparently rare in British collections. *Athoüs rhombeus*, two or three specimens, dug out of a rotten oak log. *Corymbites bipustulatus*, by sweeping. *Sericosomus brunneus*; rarely swept up. *Malthodes dispar* rarely, and *M. atomus* commonly, by sweeping in plantations. *Dasytes niger*; this scarce species, which occurred to me very rarely last year, turned up in quantity one very hot day, in flowers of *Helianthemum vulgare*, *Potentilla reptans*, *Leontodon taraxacum* and *Hieracium*, on the banks of a dry ditch, outside a young plantation of Scotch fir; it seemed very local, as I had been about the forest a week and had only picked up two or three specimens previously. A second visit to the locality only produced a few specimens, owing, perhaps, to it being very windy at the time. It also occurred very rarely on stumps, in which I expect it breeds. *Aspidophorus*, swept up rarely. *Salpingus ater*, by sweeping. *Abdera b fasciata*, rarely, by sweeping. *Phlæotrya Stevensii*; we found about a dozen of this, with many more in the earlier stages, in one rotten oak log. *Conopalpus testaceus*; I managed to secure a good set of this by chipping away at the rotten, large broken-off oak boughs, and also in the decayed part of the trunk, near the ground, of a standing oak; I have also bred two or three, since I have been back, from pupæ taken. This species was not accompanied by *Vigorsii*. *Tomoxia biguttata*, tolerably common, as before, running about in the hot sunshine, and settling on stumps and logs. *Tychius 5-punctatus*, tolerably common, by sweeping two species of vetch in plantations; one day I took about 40 specimens on one small patch of the plant; but it is very difficult to secure in good condition, more than half of the specimens taken being rubbed at the time of capture; it is also very wiry-legged, wanting to remain in laurel some time before it will set easily. Of *Rhinoncus denticollis* I swept up three or four specimens, in company with the *Anisotomæ*. *Cæliodes subrufus*, occasionally by sweeping. *Tomicus Sæsesenii*, by sweeping. *Strangalia nigra*, tolerably common in flowers, &c. *Leptura scutellata*, a number, dug out of the same stump as that in which I found it last year. *Anoplodera sexguttata*, rarely, in flowers. *Chatocnema confusa*, by

sweeping. *Engis humeralis*, a few specimens under bark of beech, in company with *Synchita*.—G. C. CHAMPION, 274, Walworth Road, London, S.: August 2nd, 1872.

Cicada anglica, Curtis.—I took two specimens of this very conspicuous insect in the open forest near Brockenhurst, flying about with a considerable whirring noise in the hot sunshine, and settling on fern.—ID.

Capture of Lasiosomus enervis, H.-Schf., near Chatham.—In the middle of last July, whilst sweeping for beetles on the chalk near Chatham, I captured a single example of *Laiosomus enervis*, recorded as British in E. M. M., viii, p. 26, on the authority of a single specimen taken by Mr. Wollaston (locality unknown). The same day I brushed up two sporadic examples of *Ceuthorhynchideus hepaticus*, and *Choragus Shepherdi*, *Trachyphlaeus spinimanus*, &c.—ID.

Duration of the egg-state of Chrysopa septempunctata, Wesmaël.—The fifteen ova, laid between 9 and 9.15 p.m. on the 16th instant, mentioned ante, page 61, hatched between 7.50 and 8 o'clock on the evening of the 24th instant. The larvæ spent the following night in one congregation; in the morning they separated, taking no further heed of each other.—ALBERT MÜLLER, South Norwood, S.E.: July 31st, 1872.

Hemerobius inconspicuus (McL.) at Rannoch.—Mr. W. C. Boyd, who made an entomological excursion to Camachgouran early in July, had the kindness to pin for me some miscellaneous Neuropterous insects. Among them was one example of this very distinct, but little-known species. It is, unfortunately, no longer in existence, having, with others, been destroyed by some unknown marauder in my setting-case.—R. McLACHLAN, Lewisham: 10th August, 1872.

A new British Crambus.—I have pleasure in recording the capture by my friend, Mr. C. A. Briggs, of an example of *Crambus verellus*, Zk., a species new to the lists of this country, and the place of which in its genus is immediately after *C. falsellus*. It was taken on the 21st July last, at Folkestone. The localities given by Staudinger are Germany, France, and Galicia. Mr. Briggs has kindly enriched my collection by presenting me with the specimen.—HOWARD VAUGHAN, 54, Chancery Lane, London, W.C.: August 1st, 1872.

Vanessa Antiopa at Great Yarmouth.—A specimen of *V. Antiopa* was taken last Friday evening on the Caistor Road, Yarmouth, by Mr. John Hallett White. A strong easterly wind had been blowing in-shore for about 24 hours previously.—A. G. BUTLER, British Museum: 29th July, 1872.

Plusia orichalcea at Glanville's Wootton, and other captures of *Lepidoptera*.—The following are the best of my captures since April:—*Eubolia lineolata*, *Theristis caudella* and *Gelechia brizelli* in South Devon during May. *Anchylopera diminutana* was absolutely the only thing to reward me during the wet and cold month of June. In July, however, I took here on the 13th, a most beautiful specimen of the rare *Plusia orichalcea* off the flowers of meadow-sweet; the species had not occurred here for 20 years. I have also taken *Aplota pulpella*, *Teichobia Verhuelleta*, *Gelechia subocellea*, &c., &c.—C. W. DALE, Glanville's Wootton, near Sherborne: 1st August, 1872.

Notes on collecting in the fen-district.—Some spare evenings devoted to collecting in the fens round Norwich last summer produced such satisfactory results, that I am induced to think a few notes on them may not be uninteresting.

The spring being cold and the season late, my first visit was not till May 29th, when I had the gratification for the first time of seeing *Papilio Machaon* at large in its favourite haunts. It must be confessed, however, that its appearance when on the wing is not equal to what might be expected of so fine an insect. It has much of the fluttering habit of the *Pierides*, and when flying about and settling on the flowers of *Pedicularis palustris*—a favourite plant—is hardly noticeable at a moderate distance. On this occasion the wind was strong, and probably prevented them from flying freely. A female rising from some plants of *Peucedanum palustre* guided me to the discovery of a couple of eggs on the under-side of the leaflets. Close by was a lovely larva of *Orgyia gonostigma* (which produced as ugly a ♀ moth in June), but, except a stray *Euclidia glyphica*, and a yellow ♀ *Clepsis rusticana* which would keep down among the long grass, nothing more was to be obtained. The wind was altogether too cold.

A week later, although the weather continued cold, a few *Micros* began to venture out wherever a few bushes afforded shelter from the north wind, and I took my first specimens of the pretty little novelty, *Phoxopteryx paludana*, along with *P. siculana*, *Penthina marginana*, *Chauliodus Illigerellus* and *Bucculatrix frangulella*. The *Peucedanum* afforded half-a-dozen more eggs of *Papilio Machaon*, the rearing of which has given no little pleasure to kind friends in distant parts of the country.

By the middle of June, insects were a little more plentiful. *Phoxopteryx paludana* was accompanied by *P. subarcuana*, both being almost confined to the wettest open places among the shorter rough grasses, *Pedicularis*, *Sphagnum*, &c., and as neither could be induced to show themselves till late in the afternoon, and even then kept among the herbage, hiding at the roots when pursued, it was a difficult task to secure a decent series. At the same time, *Eupacilia griseana* appeared pretty commonly, and, very rarely, *E. notulana*. *Penthina marginana* had become common; a very beautiful variety of *Sericoris lacunana*—blackish, with lustrous lines—which seems peculiar to the fen district, was occasionally to be met with, and a few of the larger species, such as *Hydrelia unca* and *Acidalia immutata*, had begun to appear. Of the *Tineina*, *Nemophora metaxella* (which afterwards became very common), *Elachista cerussella* and *paludum*, and *Bucculatrix cidarella* flew in the shelter of the alder bushes, and *Glyphipteryx cladiella*, *Gelechia acuminatella*, *Lithocolletis quinqueguttella*, and the lovely little *Cosmopteryx Lienigiella* among the reeds, dwarf willows, &c., in the open parts of the fen. In the tops of the dwarf willow (*Salix repens*?) were larvæ of *Clostera reclusa* and *Semasia populana*, and on the leaves of *Eupatorium cannabinum* the cases and large white blotches of the larvæ of *Coleophora troglodytella*. On the same leaves was occasionally to be seen the lovely longicorn beetle, *Agapanthia lineatocollis*, with its beautifully annulated antennæ extended in front.

June 27th was a white letter day with me. As usual, the wind was cold, but by good fortune I spied, on a blossom of *Carduus palustris*, a small, neat, narrow winged *Glyphipteryx*—not *Fischerella*; and, by searching the flowers and sweeping the rushes, I soon obtained a tolerable series. This proved to be *G. schœnicolella*, originally found by Mr. Boyd at the Land's End, and, as far as I am aware, never

taken since, until I met with it in this distant locality. Then there was a great treat—the first sight of a living *Hyria auroraria*, and a more lovely creature one need not wish to see. But the most extraordinary part of the day's work was after the cold wind had fallen; then, in a part of the fen ankle deep in water, creeping up from the tufts of a small rush, and fluttering among the reeds, was *Schœnobius mucronellus* in swarms. There must have been hundreds of them, nearly all males, and their flight lasted from 6 till 8 p.m. Their flight is fluttering and very weak, they never seem to rise above the tops of the reeds, and at the least alarm, tumble headlong into the thick tufts of rushes. At the same time, *Chilo phragmitellus* was flying commonly in dryer parts of the fen.

On July 1st, *Sericoris conchana* made its appearance, and with it the first lovely specimens of *S. Doubledayana* (E. M. M., vol. viii, p. 246), but they were rare, and little else was to be found except a specimen or two of *Hyria auroraria* and *Lobophora sexalata*; and the afternoon being warm and enervating, I was glad to sit down on a convenient tussock of *Carex* and enjoy the delicious perfume of the Fragrant Orchis (*Gymnadenia conopsea*) growing around. Then was illustrated the proverbial luck of lazy collectors, for a snowy atom which came lazily flying by, proved to be *Opostega auritella*. As it grew dusk, *Herminia cribralis* flew up from the grass, and *Collix sparsata*, *Scotosia retulata*, and *Pterophorus microdactylus* among the alder bushes, where also *Dianthæcia cucubali* and other *Noctuæ* were attracted by the flowers of *Lychnis flos-cuculi*.

A fortnight later, *Pædisca oppressana* was to be found on the trunks of poplars; *Hyria auroraria* showed a strong preference for certain spots where the herbage was half choked with *Sphagnum*; *Sericoris Doubledayana* and *conchana* were not scarce, *Bucculatrix frangulella* was still out, and I saw (and lost) a specimen of the splendid little *Cosmopteryx orichalcea*. It was sitting on a grass culm, and skipped from blade to blade through the thickest tufts, but would by no means submit to capture. Long and earnestly I searched, but never saw another. At dusk, the first specimens of *Lithosia muscerda*, *stramineola* and *griseola* appeared, with *Nudaria senex*; and, after dark, a lovely pair of *Scotosia undulata* (rare here), with *S. rhamnata* and *retulata*; *Leucania straminea* on reed, and *Pædisca semifasciana* flying among the alders.

The next day, the Norwich Naturalists' Society took boats for a row on the broads (expansions of the river which extend into the fen), but Society excursions are not favourable to hard work, and little turned up besides single specimens of *Lobophora sexalata* and *Cidaria sagittata*. We saw, however, one of the remaining stations of that rare Norfolk fern, *Lastrea cristata*, in a place so admirably concealed that, without the assistance of the fen men, it would be next to impossible to find it. The ground near by was covered with *Lysimachia nummularia* in fullest bloom, the pretty marsh vetch (*Lathyrus palustris*) blossomed among the rank herbage, and the lesser reed mace (*Typha angustifolia*) fringed the shore.

On July 19th, the second brood of *Phoropteryx subarcuana* began to appear, and *Gelechia rufescens*, *gerronella* and *ligulella*, and *Coleophora viminetella* were out. Worn specimens of *Sericoris Doubledayana* were plentiful, with *Crambus uliginosellus* and *selasellus* pretty common. All these were driven into hiding by a violent storm of rain between 7 and 8 p.m., but directly it was over, *Nonagria despecta*, *Eudorea pallida*, and *Opostega crepusculella* flew in abundance. After rain, however, collecting becomes exceedingly difficult, as the reed leaves carry so much water that the net requires wringing every few minutes.

Later in July and in the beginning of August, *Lithosia muscerda* became quite common, flying about the alder and sallow bushes at dusk; *L. stramineola* and *griseola* were much less plentiful, the latter being, curiously enough, the scarcest of the three; but *Nudaria senex* abounded so as to be a nuisance, and *Acidalia emarginata* was pretty common. *Pericallia syringaria* also occurred, with *Eupisteria heparata* and *Eupithecia tenuiata* and *subfulvata*. *Apamea fibrosa* and *Epunda viminalis* flew at night, and *Senta ulvæ* came to the lantern at midnight. The light also attracted various *Tortrices*, such as *Peronea hastiana*, *Ditula semifasciana*, and *Pædisca semifuscana* in considerable variety, as well as *Pterophorus microdactylus*. At this time, the second broods of *Phoxopteryx paludana* and *siculana* appeared, flying at sunset, as well as *Peronea Shepherdana* among its food-plant, the meadow-sweet. By energetic and persevering sweeping of the alder bushes, a fine series of the lovely little *Bohemannia quadrimaculella* was secured; one specimen of *Gelechia subdecurtella*, and two more of *Opostega auritella* occurred, flying before dusk; and *Elachista paludum* (second brood), *Lithocolletis stettinensis*, *Acrolepia pygmæana*, *Laverna rhamniella* and *Depressaria conterminella* all appeared. *Crambus uliginosellus* was still common, flying at sunset, but badly used by repeated storms of rain and wind; and in the beginning of August its congener, *C. sylvellus*, began to appear. A couple of dragon-flies, carrying on rival collecting operations, fell victims to their temerity, and proved to be a scarce species, *Æschna rufescens*.

At this time the fens are being mown, and the larvæ of *Papilio Machaon* being fully grown, are constantly found by the mowers. These men say that they know directly they have disturbed one by its strong scent, which they compare to rotten apples. It is, however, much more like that of the pine-apple, and is given off very powerfully when the larva, by pressure between the thumb and finger, is induced to protrude the forked tentacle from its second segment. It would seem as though this perfume was voluntarily given off when it is alarmed by the sudden cutting of its food-plant. At the same time, the handsome larva of *Simyra venosa* is occasionally to be found feeding on reed (*Arundo phragmites*).

On August 16th, I joined my young friend Mr. Frank Wheeler, at the fen. He had been there all day, and had taken specimens of the (partial) second brood of *Papilio Machaon* on the wing, and also the larva of *Orgyia gonostigma*. When we had worked together for some time, he called my attention to a *Noctua* sitting on a reed stem, which I instantly recognised as a ♀ *Nonagria brevilinea* in decent condition. This might be called (in classic language) a *sell* for me, especially as we both worked long and fruitlessly for more. A few *Crambus sylvellus* occurred at sunset, *Nemotois minimellus* and *Glyphipteryx schœnicolella* (second brood) on rushes, and *Gelechia muscosella* and *sororulella* flying. At night, worn specimens of *Lithosia muscerda* condescended to patronize our sugar, as did *Noctua umbrosa* and *Apamea fibrosa*.

Later in the month, *Semasia populana* made its appearance, and I found one specimen sitting in an open flower of the lovely grass of Parnassus (*Parnassia palustris*). A second or third brood of *Penthina marginana* was out, and I picked up a specimen of *Laverna phragmitella*, flying (a most unusual circumstance for this lazy species) near some plants of *Typha latifolia*.

At this time, stray specimens of a second brood of *Schœnobia mucronellus* made their appearance, and plenty of *Phibalapteryx lignata*. —CHAS. G. BARRETT, Norwich: 12th May, 1872.

Description of the larva of Cloantha solidaginis.—For the opportunity of making acquaintance with this long wanted larva, I am indebted to the kindness of Mr. George Norman, of Forres, who sent me two eggs on the 25th of April last. These hatched in a day or two, and the newly-emerged larvæ were of a dark slaty-green colour, with the head dark brown. By May 4th, they had attained to a quarter of an inch in length, the ground colour being purple, with the dorsal and sub-dorsal lines pale grey, the (rather broad) spiracular lines white, and the skin shining. By May 24th, half an inch had been reached, and the ground colour had changed to a very dark chocolate-brown, with broad, bright yellow, spiracular stripes, the narrow dorsal line being then of a pale slaty-blue. Several days after this, one of the larvæ died: the remaining one, however, fed on satisfactorily, and by June 4th, its colour had again considerably changed, the ground being dark purplish-brown (darker on the sub-dorsal than the dorsal region, which had a faint pink tinge), the head dark brown, smooth and shining, the dorsal stripe dark brown, with a distinct pale bluish-grey central line, but no perceptible sub-dorsal lines, only a broad, clear, pale yellow stripe along the spiracular region; the spiracles and trapezoidal dots grey, and the ventral surface, legs and prolegs of a uniform dark purplish-brown. By the middle of June, it was full-fed, and the adult larva may be described as follows:—

Length about $1\frac{1}{2}$ inches, and of average bulk in proportion. Head globular, the same width as the second segment. Body cylindrical, and of nearly uniform width throughout, being attenuated very slightly towards the head. Skin smooth and soft.

The ground colour dark olive-brown, strongly tinged with purple. Head smooth and shining, pale brown; the front of each lobe dark sienna-brown. Dorsal line dull slaty-blue, edged with smoke-colour; no perceptible sub-dorsal lines, but a broad, clear pale yellow stripe along the region of the spiracles, edged on the upper side with a very fine black line, on which the reddish-brown spiracles were placed. On the front of the second segment, a conspicuous black mark, and a transverse black mark on the hinder part of the twelfth segment. Trapezoidal dots very distinct, pale yellow. Ventral surface purplish-brown, tinged in the centre with green, gradually becoming darker towards the pale spiracular band. Legs brown and shining.

The larva, both in the adult and earlier stages, is very beautiful; the single one reared went down on June 19th.

At first, the larvæ fed on whitethorn; but, on being supplied with bilberry, evidently preferred that plant, which is, in all probability, the natural pabulum of the species.—GEO. T. PORRITT, Huddersfield: August 10th, 1872.

Natural history of Carsia imbutata.—For eggs of this species I am indebted to Mr. E. Birchall and Mr. G. T. Porritt, who sent me a good supply in August, 1871.

These eggs were kept out of doors through the winter, and the larvæ began to hatch towards the end of April, 1872,—that is to say, some of them did so; a great many must have died in the egg, and many more soon after hatching, for in the first week of May I found but two alive. The wintry time in April, succeeding the more open weather of the preceding months, was, I believe, the cause of this mortality, and before long killed also one of the two survivors; and yet it has so often happened

of late that I have had to carry on my investigations with a single larva out of a numerous brood, that perhaps I ought not to blame the weather so much as some fault of my own,—possibly my bungling may be one link in the chain of causes which work together in the natural selection of the individuals, whose looks and doings get chronicled in this Magazine.

My one larva of *imbutata* grew slowly, feeding on *Vaccinium vitis-idaea* at first, and afterwards on *V. oxycoccos*, kindly sent me by Mr. Birks, until June 16th, when it spun up; the moth appeared July 10th.

The egg is not remarkable; it is of an obtuse oblong shape, flattened, with scarcely any gloss on the shell, which is neither reticulated nor pitted; the colour at first pale yellow, afterwards deeper yellow, and not changing much again when the larva is near hatching.

The young larva is dull yellowish or greenish, with a pinkish head, and with fine dorsal, and broader sub-dorsal brownish lines; as it grows, it becomes of a tender greenish-yellow, and the lines more reddish, assimilating in tints to the young leaves of the food-plant, with their reddened edges and tips; afterwards, by degrees, the whole back of the larva becomes brownish, leaving the under side still yellowish.

The length of the full-grown larva is not quite five-eighths of an inch, the figure somewhat stoutish, uniform in bulk throughout, but its habit of holding the head a little downwards and folding all the anterior legs close up to it, gives a clubbed appearance to the thoracic segments when seen sideways, the back of those segments being arched or humped up; the colour all over the back to near the spiracles is of a rather deep brownish-red, with a very fine dorsal and sub-dorsal line of blackish-red; along the spiracular region is a broad, brilliant yellow stripe, separated on the thoracic segments from the red above by a black edging, but this only appears faintly at the segmental folds for the rest of its length; this broad yellow stripe is blotched at the folds between segments 6—10 with beautifully softened blush-like spots of red, the black spiracles standing in the clear yellow spaces; below this, comes a line of blackish-green, very fine on the thoracic segments, undulating in its course, and thickening at the folds, becoming gradually tinged with red, till at the tenth segment it is a red stripe; the belly is pale greenish-yellow, with a central paler line, bordered by darker lines; the head is dull pinkish-red on the top, paler than the colour of the back, becoming paler still near the mouth; the ventral legs are pinkish-red; the anal legs brownish-red like the back, with a yellow line down them; the usual dots are small in size, yellow, ringed with brown.

From the look of the young larvæ, I was led to believe that, had I reared more than one example, I should have seen some variety of colouring.

When I found my larva ready to change, I put it into a large chip box, with about half-an-inch of fine loose soil, and it spun its cocoon under this, attaching it to the bottom of the box; the cocoon is very weak, being formed of particles of soil spun together with not much silk; the pupa is slender in form, three-eighths of an inch in length, the head-piece distinctly shaped, the antennæ-cases ending in a little bifid projecting knob or spike, the skin shining; the colour of the head and wing-case was probably somewhat olive-brown when the insect was within, the abdomen of a more reddish-brown.

The imago I bred was rather small, but most beautifully coloured.—J. HELLINS, Exeter: August 8th, 1872.

Extract from Dr. Laboulbène's opening address as President of the French Entomological Society.—Let us re-commence our labours, confident in the future. Let us insist upon working unexplored fields; let us seek the best subjects for study; let us renounce devotion to doubtful species established on simple varieties.

The orders of insects other than *Coleoptera* and *Lepidoptera* are too much neglected. May our young colleagues adopt these neglected orders by preference; may their labours make known to us all the *Orthoptera*, *Neuroptera*, *Diptera*, and *Hymenoptera* of our country. Let us sincerely abstain from making descriptions of all aberrant varieties, at the end of which one reads the stereotyped phrase—"This is perhaps only a variety of such a species."

The *Micro-Lepidoptera* are more sought for than formerly, but how much have we yet to do to make them well known! I ask our lepidopterists to quit the beaten track of the large species for the unknown, and so attractive, world of small ones.

That which we must have, especially among such of us as live in the country, is patient observers of the manners of insects. On this, entomological science is established. The best executed 'faunæ' are only descriptive catalogues, and means by which to recognise species, of which the history is only rendered complete and definite by statements of the earlier stages and habits. The description of larvæ and metamorphoses does as much for science as that of the perfect insects. Methodical classifications will be finally established on life-history, and not on a single state of the insect.

One word more, gentlemen, to tell you that we ought to aim at the progress of, and seek to maintain, the elevated rank we occupy in Zoology; but let us remember that *sterile agitation is not veritable progress*.

(Printed in the bulletin of the French 'Annales' for 1872, p. iv. Most of Dr. Laboulbène's observations are equally applicable to entomologists of any nationality.—EDS.).

New names for a long known Lepidopteron.—In the last Number (August, 1872) of the 'Annals and Magazine of Natural History,' Mr. A. G. Butler describes and figures a new genus and species of the family *Notodontidæ*. The genus is named *Tarsolepis*; the species *T. remicauda*.

The same insect, however, is already figured (in 1806) by J. Hübner, in the second volume of his 'Sammlung exotischer Schmetterlinge' (plate 197) under the name *Crino Sommeri*; and, as belonging to the *Noctuæ genuinæ*. Herrich-Schæffer (Sammlung neuer oder wenig bekannter ausser-europäischer Schmetterlinge, p. 11) changed the generic name, as used before, to *Crinodes*, and placed the insect in the family *Notodontina*. Walker, on the other hand, in his 'List of the Specimens of Lepidopterous Insects in the Collection of the British Museum,' part xiv (1858), p. 1346, brings the genus *Crino*, Hübn., to the Noctuid family *Ophiussidæ*, which, however, is rectified in the 'Stettiner entomologische Zeitung' for 1862, p. 477, by K. Dietrich, who regards it, and most justly, as a *Notodontid* genus, nearly allied to the genera *Phalera*, H.-Sch., und *Datana*, Walk.

I have seen five specimens of *Crinodes Sommeri*, Hübn.; four females in the collection of the Royal Museum at Leyden (placed, under the name *cilaminata*, de Haan, i. l., in the genus *Nystalca*, Gn., at present also a *Notodontid* genus), and one

male in Mr. P. C. T. Snellen's collection at Rotterdam, all sent over from Java. Walker (*l. c.* p. 1348) makes mention of a specimen from Rio Janeiro in Mr. Fry's collection.—C. RITSEMA, Leyden: *August 10th, 1872.*

*Notes on a paper entitled 'Die schweizerischen Arten der Bienen-gattung Anthidium,'** [issued] by Walther Schmid, Oberfoerster.—“Heft” No. 9, vol. iii, of the ‘Mittheil. der. Schweiz. entomol. Ges.’ contains a paper under the above title, of which Herr Walther Schmid is given as the author, and upon which I wish to make some observations. In these I will endeavour to shew Herr Schmid every favour, so far as is consistent with the obligations due to the memory of the late Dr. Imhoff, who laid the foundations of what I know in entomology, which may not be very great, but still is sufficient to recognise the literary performance of the hand that built it up, even when, as in the present instance, that performance appears to have been “improved upon” by others. Hymenopterists in general, and the writer in particular, would be glad to know if Herr Walther Schmid has used MSS. notes in the handwriting of Dr. Imhoff, or if he is prepared to assert that the above paper from beginning to end is his own original work. If no answer be forthcoming to these two queries, people will draw their own conclusions.

In the meantime, it is advisable to place the following facts on public record:—

- (1). Herr Schmid paid a visit to the house of Dr. L. Imhoff after this gentleman's death, and obtained permission to look over such of his literary remains as concerned entomology.
- (2). Herr Schmid had access to the types labelled and named by Dr. Imhoff, and deposited in the Museum at Basle.
- (3). Herr Schmid, previously to the publication of the paper in question, has not published a single scrap on entomology.

Viewing the aforesaid paper in the light of these facts, what do we find?—First tokens of the most abstruse knowledge of a genus, the individual species of which are not easy to determine; and, secondly, plain signs that the veriest tyro in entomological matters has “had a finger in the pie.” Tokens of special knowledge are also displayed in parts of the introduction, while other parts, such as the enumeration of the literature consulted, shew an unskilled hand at every turn, unless, indeed, we charitably call such slips as “Kirby, Monographie,” “fabricus,” “St. Feargeau,” etc., errors of the press.† But for one thing the printers cannot be made answerable, namely, for the absence of all reference to the works of Nylander, Rossi, Jurine, and Linné, and of omissions like these no man of Dr. Imhoff's attainments could have been guilty. These and similar defective portions I willingly admit as being Herr Schmid's own doing, while, on the other hand, I emphatically ask who has written pp. 451—462? I shall be glad to learn that these pages represent the original thoughts and composition of Herr Schmid, and not, as I fancy, in part posthumous notes by Dr. Imhoff.

On pp. 462—474 we have the descriptions of 14 species of *Anthidium*, and of the allied *Stelis nasuta*, Latr. In reference to these descriptions, it will be well to remember that they have probably been written out from the original types, as

* cf. a companion paper by Dr. L. Imhoff: ‘Die schweiz. Arten der Gattung *Andrena*, Mittheil. Schweiz. ent. G.’ ii, p. 33.—A. M.

† The ‘Mittheilungen’ are, nevertheless, conspicuous for such mistakes.—Eds.

labelled by Dr. Imhoff; indeed, in the case of *A. curvipes*, Imh., this is distinctly mentioned, although any allusion to Dr. Imhoff's labelled types is studiously avoided elsewhere. The question I put to Herr Schmid here is, has he named the species he describes, or has he relied entirely upon the types labelled by Dr. Imhoff? A distinct answer to this query will save much trouble to future investigators. By what appears on the surface, it seems as if the latter method had suited his convenience best; or, if he has critically tested the descriptions of the various authors, why not give the synonymy? Its absence in the majority of cases is a great drawback to the usefulness of the paper.

Dr. Imhoff's name is mentioned three times only in the whole paper; surely he had a greater share in the collection of specimens than this figure shows. It would have been scant justice to a Hymenopterist of great fame to have acknowledged even such assistance.

Twice in the course of the paper "unsere Museum Sammlung" is mentioned, but it nowhere appears *which* of the (20 odd) Museums of Switzerland is meant. It is, therefore, needful to explain to strangers that Herr Schmid lives at present at Basle, and that Dr. Imhoff's types are kept in the Museum of that town, as I have said before.

At p. 470, we read under *A. oblongatum*, "Meine reichlich gelben *Arten* stammen meistentheils aus dem Unterwallis, die dunklern aus der hiesigen Gegend, doch fand ich hier [where?] schon dunkle und helle zusammen *in copulâ*." Surely, instead of "*Arten*," Herr Schmid meant to say "*Stücke*;" else the phrase has no sense in its present connexion. A species is not a specimen. The locality is, I presume, Basle.

The paper is accompanied by a folded double plate, owned to by Walther Schmid, and the authorship of which nobody who sees it is likely to dispute with him.—ALBERT MÜLLER, South Norwood, S.E.: July, 1872.

Obituary.

Coleman T. Robinson.—The American entomological publications have lately recorded the decease (the result, we believe, of a carriage-accident) of Mr. Robinson, the late President of the American Entomological Society. He was born in the State of New York in 1838, and, after having finished his education, and made a tour in Europe, &c., commenced business on the New York Stock Exchange, from which he retired a year or two since, having already amassed, it is said, an immense fortune. Notwithstanding his business engagements, he had acquired considerable entomological reputation through his papers on North American *Lepidoptera*, published chiefly in conjunction with his colleague Mr. Grote (with whom he visited this country about two years since), and he had recently turned his attention greatly to the *Tortricidæ*. A list of his separate writings, from the pen of Mr. Grote, is in the 'Canadian Entomologist,' vol. iv, No. 7.

His premature death is a great loss to entomological science, and will be deeply felt by his American colleagues. The Society of which he was President has of late, we regret to say, shown signs of a want of that vitality which characterized its commencement,—the result, probably, of limited funds. It is to be hoped that the loss sustained by Mr. Robinson's death may not further depress its energies.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 1).

BY F. BATES.

ARYENIS, mihi, Trans. Ent. Soc., 1868, p. 309.

It was suggested to me by Dr. Le Conte, when going through my collection, that this genus should, by its elongate metasternum and winged condition, be placed with the *Epitragides* of Lacordaire. Dr. Mäklin, in the Stett. ent. Zeit., 1872, p. 247, has also expressed the same opinion, giving as its nearest ally the genus *Sphenaria* of Ménétries. I still think, however, that this genus cannot be removed from the vicinity of *Evaniosomus*, Guérin. The narrow, elongate head, with its supra-orbital carina; the strongly produced epistoma, uniformly continuous with the front; the elongate and very prominent antennary orbits, which are rigidly marked off from the rest of the head by a deep sulcus; the elongate palpi; the prothorax, with its pronotum continuous with its flanks; the elongate, slender tarsi (having the first joint of the two posterior pairs much larger than the last) channelled beneath and ciliate with short, spiniform hairs; are strong characters possessed by this genus in common with *Evaniosomus*. The eyes are certainly much larger, and are approximate beneath. The elongate metasternum and the wings are also exceptional; but even these characters are met half-way in the genus *Chorasmius* (a genus I have proposed—Trans. Ent. Soc., 1868, p. 310, note—to receive *Evaniosomus procerus*, Er.), which has the metasternum nearly double the length, as in *Evaniosomus*, and the wing-cases open (not connate). I possess, moreover, a second species of *Aryenis* (*A. Haagi*, mihi *i. l.*), which still more closely approximates this genus to *Chorasmius*, and, through the latter, to *Evaniosomus*.

I think it will be found that Lacordaire throughout his work has attached too much value to the relative length of the metasternum as a character in classification; certainly, to remove *Aryenis* from close proximity to *Evaniosomus* would be a violent severance of very natural affinities.

ANCYLOPOMA, Pascoe, Ann. Mag. Nat. Hist., 1871, p. 354.

This genus must be referred to the *Heterotarsides* of Lacordaire; it should be placed after *Anædus*, Blanch.

ACANTHOSTERNUS, Montrouz., = *Diphyrrhynchus*, Fairmaire.

This opinion, however, is dependent on the genuineness of so-called types I had from the collection of Doué.

ANIARA (Dej.) Lacord., = *Cenoscelis*, Wollaston, *Aniarius*, Gemminger, *Holaniara*, Fairmaire, = EUTOCHIA, Le Conte.

This genus of *Ulomides* was first briefly characterized by Lacordaire (Genera, v, p. 336, note [1859]) under the name given by Dejean. This name being already in use, Le Conte, in his Classif. Col. N. Amer., p. 238 (1862), substituted that of *Eutochia*. Wollaston, in his Col. Hesp., p. 179 (1867), described his genus *Cenoscelis*,* which he doubtfully referred to the tribe *Pedinides* (group *Platyscelides*) of Lacordaire. Gemminger, in his great Catalogue, alters Lacordaire's name into *Aniarius*: and, lastly, Fairmaire, in the Ann. Fr. 1871, p. 43, apparently not knowing what had been done before him, gives the name of *Holaniara* to the genus.

ONOSTERRHUS, Pascoe, Journ. Entom., ii, p. 451.

This genus, referred by its author to the *Pedinides*, must be removed to the group *Nyctozoilides* of Lacordaire. I possess an undescribed genus (*Hypocilibe*, mihi i. l.) from Australia, which clearly associates Pascoe's genus with *Nyctozoilus*, Guérin. This is another of the many instances in which apparently peculiar and isolated forms are brought into harmony by further discovery.

TRICHOSTERNUM, Wollaston, = *Trichopodus*, Mulsant.

EXERESTUS, mihi, = *Rhinandrus*, Le Conte, teste Le Conte.

It is quite possible also that *E. Jansonii*, mihi, = *R. elongatus*, Horn.

IPHITHIMUS CANCELLATUS, Montrouz.

Belongs to the genus *Dechius*, Pascoe.

NYCTOBATES ORCUS, Pascoe.

Belongs to the genus *Hypaulax*, mihi.

TENEBRIO CROTCHI, Wollaston.

This is not a *Tenebrio*, but belongs to the *Ulomides*, and will form the type of a new genus (*Pelleas*, mihi i. l.), which should be placed, I think, near *Ulosonia*. It is the *Tenebrio parallelus* of Dej. Cat., p. 226.

DOLIEMA, Pascoe, Journ. Entom., i, 1860, p. 50.

The *Adelina plana*,‡ Le Conte, of which I possess a type specimen, belongs to this genus, which must be placed near *Sitophagus*, Mulsant.

* The singular form of the last joint of the labial palpi in this genus is peculiar to the ♂; a similar peculiarity in this organ exists in the ♂ of the cognate genus *Oligocara*, Sol.—F. B.

‡ If it should be proved that Fabricius' species of the same name (Harold and Gemminger's Catalogue, p. 1987) is a true *Doliema*, then Le Conte's name will require changing.—F. B.

SITOPHAGUS SOLIERI, Muls.

I have no doubt that this is identical with the *Hypogena complanata* of Dej. Cat. p. 220; and it is more than probable that the *Adelina furinaria* of Wollaston is also the same species.

ODONTOPUS PHYSODES and ASPERATUS, Pascoe, Ann. Mag. of Nat. Hist., 1871, p. 355.

Both these species belong to Dr. Mäklin's genus *Aspidosternum*, a genus of *Strongyliides*. The *O. physodes* I more than suspect to be the same thing as the *Lagria æruginea* of Gerstäcker, Peters' Reise, 1862, p. 295, t. 17, fig. 9.

ODONTOPUS SPECIOSUS, Pascoe, l. c., p. 356, note, = *Aspidosternum cyaneum*, Mäklin.

SCOTÆUS, Hope, and EUCYRTUS, Pascoe.

Gemminger and v. Harold, in their Catalogue, have sunk the latter genus under the former, although the two are as distinct as well can be. It is difficult to conceive on what grounds these authors have, in this and a multitude of other cases, proceeded; it looks very like mere guess-work.

ADELIUM TRISTE, Montrouz.

Is a species of *Arcothymus*, Pascoe.

STRONGYLUM ÆNEUM and MULSANTI, Montrouz.

These will form a new genus very closely related to *Titæna*, Erichs.; they have no relation with *Strongylium*.

STRONGYLUM VIRIDIPENNE, Montrouz.

Is very near to, if not identical with, *Chariotheca*, Pascoe.

15, Northampton Square, Leicester:
September 7th, 1872.

INSTRUCTIONS FOR THE COLLECTION AND PRESERVATION OF
NEUROPTEROUS INSECTS.

BY ROBERT M'LACHLAN, F.L.S.

The best aid and incentive to the study of any group of natural objects is the possession of a well-ordered collection, and any hints tendering to further this acquisition cannot but be of service. Taking this for granted, I propose to give here general instructions to those entomologists—few though they be—who turn their attention to that heterogeneous assemblage of insects known as the Linnean order

Neuroptera, believing also that some who have neglected this order for want of some general guide to the means of possessing the necessary collection, may be induced to turn their attention thereto if they learn something of the *modus operandi*. As the majority of these insects are aquatic in their earlier stages, the very excursions necessary for their collection cannot fail to be a source of enjoyment to all who can appreciate the beauties of natural scenery, for they must take the collector to the banks of rivers and lakes, reedy ponds and rushing waterfalls, localities upon the beauties of which the author of 'Rambles by Rivers' would have eloquently discoursed.

As the utility of all instructions depends upon their conciseness, I shall endeavour to concentrate these remarks as much as may be consistent with their usefulness, by laying down general hints, leaving the more minute particulars to be filled in by the accumulated experience of individual collectors; for, after all, experience is the only true guide,—*that* alone can help the entomologist to that correct appreciation of cause, effect, and probability, so essential to the success of the object he has in view. And though I especially address these notes to *British* entomologists, I shall embody therein more general instructions to collectors abroad, those who cannot find time for elaborate preparation of their specimens, and with whom the acquirement of large numbers of specimens and species is really of more consequence, both to themselves and to the entomologists who may benefit by their labours, than beauty of condition of a few examples. Specimens cannot be too perfect, or in too good condition; this I look upon as an axiom: yet it seems to me that the rage for 'perfect' specimens, so strongly marked in many entomologists of the present day, savours more of the amateur than of the student; and I confess that, for my part, I would rather have 50 species perfect enough to admit of a correct appreciation of their structure and peculiarities, than 10 so perfect that not a defect exists. I throw out this last opinion not as recommending carelessness of preparation, but as discouraging the craving for cabinet objects instead of materials for study. The student-entomologist should try to believe that "half a loaf is better than no bread," and not despise a specimen because a joint or two of an antenna, or a leg, &c., be missing.

GENERAL OBSERVATIONS.

Before proceeding to consider the different families of Neuroptera in detail, it may be as well to give a few general hints that will apply to all.

NETS.—This subject may be dismissed in very few words. An ordinary butterfly ring-net is sufficient for almost every purpose; for colour I prefer white, and for material ordinary book-muslin, though something stronger is sometimes advisable for sweeping. The ring of the net should be of moderately large size to suit it to the capture of Dragon-flies by giving sufficient spread.

PINNING AND SETTING.—Almost all these insects should be pinned through the thorax between the anterior pair of wings, inclining the head of the pin slightly forward. As I take it to be almost useless to attempt to induce collectors of British insects to adopt other than *short* pins, I urge here only that the pin should be run through the body so far that at least one-third of an inch projects on the under side, and that the setting board be comparatively flat. By this means the legs, &c., which are most important members in the study of Neuroptera, and without which even the generic positions cannot in many cases be ascertained, are left free, and less liable to be broken off, and the wings touch the paper of the drawer or box in no part. I would earnestly beg all Neuropterists to eschew the plan adopted by many of our Lepidopterists, who so pin and set their insects, that when placed in the cabinet they look more like so many permanent rows of postage-stamps neatly gummed in an album, than collections of natural objects intended for purposes of study and hence liable to repeated removals, the legs, &c., being so hidden as to give an idea that these are absolutely of no consequence, and that everything depends upon the pretty colours or markings of the wings. Setting-boards with *square* grooves I hold to be infinitely preferable to those with the ordinary *rounded* grooves. My own British collection is set upon short pins, but if I had to re-commence to-morrow (which Heaven forbid!), I would carefully avoid these, use longer ones, and set the wings flat, after the method adopted by almost all except British entomologists. The advantages are infinite. The insects suffer little, if at all, from mites and other depredators; and, what is of paramount importance, the notes of the locality, date, &c., can be placed in neatly written labels upon the pin itself, and every specimen may also bear a name-label, a point of much weight in typical collections; furthermore, the insect is easier to examine under the lens. But some of our continental friends carry the use of *long* pins to an excess, beyond the bounds of reason or utility. A pin of about $1\frac{1}{2}$ inch in length is quite sufficient, and it should be pushed through the insect for fully two-thirds of its length. It should be *not too fine* (a point

upon which continental entomologists strongly err). Two sizes are enough for all ordinary purposes, and for my re-set foreign insects I use Nos. 2 or 3, and 16, manufactured by D. F. Tayler and Co. A strong pin renders the specimen much more durable, and I fancy the absurdly fine pins used on the continent have to some extent disgusted English entomologists with the high-setting there adopted: these can only be inserted in the cork by the use of the forceps *under* the insect, and even then we often see them bent into all sorts of zig-zags, to say nothing of the unavoidable jerking off of bodies, &c. For very minute insects it is always advisable to use short pins, such as Nos. 19 and 20, adopted by English Micro-Lepidopterists, and if the collection be otherwise set on long pins, then these short pins bearing the insects should each be stuck into a little oblong piece of white pith neatly cut with a very sharp thin knife (a razor will not do owing to its thick back), and this impaled on a long pin. The best kind of pith is that obtained from dead and dry stems of Jerusalem artichoke, which is of extreme whiteness, and does not change colour by age, the latter being an especial defect of elder-pith. In setting, the wings should be spread out with braces exactly as in butterflies and moths; but it is always desirable to leave a few of each species unset, so that on the pin they retain the natural position in repose. Setting-boards suitable for long pins are kept in stock by many dealers in entomological apparatus, or would readily be made to order; the groove should be very deep, leaving only enough cork to hold the pin firmly, so that the legs may suffer no injury. But I am always glad to receive these insects unset. When the collector occupies himself with other orders, and catches Neuroptera simply to oblige friends, he cannot be expected to waste time in preparing insects that are useless to him. The greater part relax very readily on ordinary damp sand, or in a zinc relaxing-box: Dragon-flies are especially tractable in this respect, and, when treating on them, I shall take occasion to point out, especially to foreign collectors, that these are even better if sent home not pinned.

CARDING.—On this point I shall say little, except to discourage, to the utmost, the adoption of the system. I look upon its application to almost any order as a modern innovation, which I would fain hope is on the wane, even among those inveterate "carders," the Coleopterists. To apply it to Neuroptera, is to render them almost absolutely useless. Nearly everything here depends upon the neurathion of the wings; and this can, in most cases, only be properly traced

by holding the insect to the light, the intricate veining being usually more or less pale, or even transparent. Carding can only be tolerated by the Neuropterist when applied to the preservation of minute apterous forms, such as some Psocidæ.*

PRESERVING IN ALCOHOL, &c.—As so much depends in many groups of Neuroptera upon the form of the genital organs and their secondary appendages, it is of much service if some specimens be placed in spirits of wine, or some analogous medium, so that these forms can be more reliably ascertained, and safer descriptions and drawings be made therefrom than can sometimes be had from dry specimens. But I confess to having a prejudice against collections consisting almost entirely of specimens in alcohol. The constant care necessary for their preservation is a great drawback, and can be only exercised in large museums, and, even in these, I think experience will prove that pinned specimens will stand a much better chance of a long existence than will those in alcohol; and this must not be lost sight of when typical collections are concerned. There is no reason why a pinned collection should not last for at least a couple of centuries, and be then of use to the student, if ordinary care be taken; but I much fear that the myriads of glass tubes with alcohol, &c., necessary for a large typical collection, would, with their contents, stand little chance of an existence for half that period. Hence, I look upon this mode of preparation as more adapted to temporary purposes. If the necessary descriptions or figures be once made, much is done, for the natural form of the parts can, in most cases, be traced in the dry insect; whereas, details drawn up from dry insects in the first instance, are often difficult of application to the actual condition as exhibited in moist preparations. Mr. Eaton strongly recommends using pure glycerine and water, the former being added drop by drop to a tube partly filled with water till it is full, and with the addition of a small drop of acetic acid, the tube being finally corked. And here I would urge my chief objection to moist preparations. If cork only be used, the spirit or other substance will quickly evaporate, and the insects be destroyed; and if hermetically sealed, the specimens are comparatively useless, for sufficient examination can seldom be made through

* In Coleoptera, "carding" has many serious disadvantages. Important characters are present in the "cushions" of the under-side of the tarsi, in the insertion of the coxæ, and in the abdominal segments, to say nothing of the mouth-parts. Some argue that all these difficulties can be met by gumming certain individuals on the back. But suppose the specimen *entre à soleil* be not specifically identical with those *ventre à terre*! and this is an accident likely to occur to the most expert Coleopterist. An esteemed colleague, to whom I have often argued my objections to the carding system, suggests that the specimens can easily be "floated off" in water, and examined on all points. What unnecessary trouble! what bother over gum-beclogged tarsi, &c.! I often see carded Carabi; and, if the practice be not on the wane, as I think it is, I expect to see a carded Goliath-beetle!—R. McL.

the glass tube. Carefully prepared microscopic slides of the whole insect, or of the particular part to be examined, in Canada-balsam or glycerine, seem to me more likely to serve the purpose intended.*

BOXING, KILLING, &C.—Most small species, when caught, may be placed in ordinary pill-boxes till arriving home from a day's excursion; but if the weather be hot, many of them are liable to die, dry, and get broken in the course of a long day. This applies especially to water-frequenting groups, for these part with their moisture very readily and soon become dry (Botanists experience a similar thing in drying water-plants for the herbarium). Therefore, it is often desirable to kill the insects as soon as caught, and pin them in a zinc pocket-box with damped cork. A quantity of small glass tubes with corks is a useful adjunct to the other apparatus carried by the collector. For killing, nothing is better than a "killing bottle" (such as is now supplied by any dealer), consisting of a short, wide-mouthed pomatum-bottle, into which is placed a small quantity of cyanide of potassium, this being covered with about an inch of plaster of Paris made into a thick paste, which soon hardens, through which the deadly cyanogen gas slowly passes. Such a prepared bottle will maintain its effect for several years, and the insects die almost instantaneously without becoming stiff. In the case of insects in small pill-boxes, it is advisable to place box and all into the bottle, having first made (for more rapid effect) a small incision with the point of a penknife in each lid. Those species that have no great amount of hairy clothing may be bottled from the net, remaining in the bottle until the time arrives for setting, but hairy species rub too much one against the other if this plan be adopted for them.

In bringing these preliminary remarks to a close, I would re-iterate that *experientia docet* is the best motto for the collector. I have known men who have spent the greater part of a tolerably long life in going from friend to friend asking advice, dying before they could make up their mind which particular instructions to follow. I cannot imagine a more unhappy or useless existence. Any honest advice is worthy of consideration; it is for the individual originality of the recipient to apply or modify it to his best advantage.

The few remarks on breeding that may be hereafter made, will be of necessity second-hand, my own experience on this subject not being sufficient.

(To be continued).

* Foreign collectors often send home beetles and other hard-bodied insects in spirits. This plan should not be applied to Neuroptera, unless on the before-mentioned principle, that "half a loaf is better than no bread," or for special purposes. Those with hairy bodies or pubescent wings are much injured in spirits.—R. McL.

THE RECENT INVASION OF GREAT BRITAIN BY *VANESSA ANTIOPA*.

BY H. T. STANTON, F.R.S.

While the circumstance of such an influx amongst us of *Vanessa Antiopa* as has not occurred within the memory of the "oldest entomologist" is still fresh in our recollections, I wish to call attention to the quarter whence probably these invaders have come.

When, 13 years ago, writing "On the Geographical Distribution of the British Butterflies" (Trans. Ent. Soc. Lond., new series, vol. v, p. 234), I noticed, with reference to "the three stragglers in this country," that *Pieris Daplidice* and *Argynnis Lathonia* seemed con-



fined to the southern counties of England, not ranging north of Peterborough, but that "*Vanessa Antiopa* is most plentiful between the Humber and the Tyne, and has more than once been noticed on the north side of the border."

The inference I had drawn from this, though not then expressed, was, that if *Daplidice* and *Lathonia* came to us from France, *Antiopa* more probably came from Norway.

If the specimens of *Antiopa* (seen or caught) recorded in this Magazine be arranged in the order of the latitude of their localities, we get the following result:—

Folkestone 1, *Dover* 2, Tunbridge Wells 2, Copthorne 1, Box Hill 1, *Herne Bay* 1, Eltham 1, Lewisham 1, Twickenham 1, Erith 1, Hyde Park 1, Highgate 1, *Southend*, *Essex* 1, Totteridge 2, Hitchin 2, Cambridge 4, Ramsey 1, Chatteris 2, *Yarmouth* 1, Norwich 6, Leicester 1, Barnsley 3, Huddersfield 1, Cleckheaton 1, *Hull* 1, Bretton 1, Leeds 1, York 1, Darlington 1, *Saltburn* 1, *Forres*, *Morayshire* 2.

The italics indicate localities on the coast,—and Dover, Herne Bay, Southend, Essex, Yarmouth, Hull, Saltburn, and Forres are all on the East coast.

Many of the captors have noticed the whiteness of the borders, and I should be very glad to hear whether *any* of the specimens lately caught have pale yellow borders.

Godart, who wrote in 1820, speaks of "la bande jaunâtre," and indicates the insect as being common near Paris. It would appear, however, from his remarks, that spring-caught specimens had white borders; and Berce, writing in 1867, says of the hibernated specimens, that their yellow margin has become white, "leur bordure jaune a passé au blanc."

In Belgium, the insect is described as "common in the wooded mountains of the Ardennes, at Spa, &c. Tolerably rare in the gardens of the other provinces of the country, where it is found on fruit trees" (Annales de la Soc. Ent. Belge, I, p. 23); and we also read there that the hibernated specimens which appear in April, "ont alors la bande terminale blanche," implying that the autumnal specimens have yellow borders.

In Holland, we read in Snellen's 'De Vlinders van Nederland,' p. 37, that the border of the wings is pale yellow or white, "lichtgeel of wit," and that the insect occurs throughout the country, and is everywhere scarce.

Linné, in his 'Fauna Suecica,' speaks in the diagnosis of "limbo *albido*," but in the description given he says "margine *albo*." Zetterstedt, in his 'Insecta Lapponica,' also uses the adjective *white* to express the colour of the margins, and mentions the insect as no rarity in Lapland, though *Io* and *polychloros* do not extend so far north. Wocke, in his 'Notes on Norwegian Lepidoptera,' says (Stett. ent. Zeit., 1864, p. 173), "hibernated specimens of *Vanessa Antiopa* were not scarce at Sigstätt and in Gudbrandsdal," but does not mention the colour of the margins.

The dates of the occurrence of the various specimens have not been always noticed; but, from those recorded, I collect the following:—July 26th; August 21st, 22nd, 23rd (2), 24th (8), 25th (3), 26th (2), 28th (2), and 29th; September 1st, 2nd, 3rd, 7th, 14th, and 15th; the numbers in parentheses representing the number of specimens captured or seen when more than one.

It would thus appear that the solitary specimen recorded last month has no connection with the recent invasion, of which the first specimen was noticed on the 21st August, the maximum was attained on the 24th, and then the specimens seem speedily to diminish in the early days of September.

One theory is, that the specimens are already hibernating; but we are perhaps hardly sufficiently acquainted with the habits of the insect to say whether, like *polychloros*, it hibernates early, or whether,

like *Atalanta*, it hibernates late: in the latter case, we should expect stragglers to be met with on ivy-bloom. But there can be very little doubt that hibernated specimens will be met with next spring.

In France and Belgium, we find that the borders of the wings should now be "yellow;" and the insect is scarce in those parts of Belgium nearest to us. In Holland, we find that the borders of the wings should be "pale yellow or white," and that the insect is every where scarce; but in Norway, Sweden, and Lapland, we find the insect "no rarity," and "not scarce," and the borders of the wings white.

That migrations of butterflies sometimes take place is indubitable. In 'Kirby and Spence' (7th edition, p. 296), we are reminded that "a migratory column of *Vanessa cardui*, of from ten to fifteen feet in breadth, and the passage of which occupied two hours, was observed in 1836, in the canton of Vaud, Switzerland;" and, though the intervening 300 miles of sea seems to place an impassable gulf between Norway and our Eastern coast, I still incline to the opinion that the recent invaders have come to us from Scandinavia.

The possibility of the insects now settling here is, however, still a subject for contemplation, and I have already received enquiries as to the actual food of the larva; most authors agree in giving birch, poplar and sallow, as well as willow, as the food of the larva; but more than one author mentions that the larvæ feed at the very summit of the trees. The larva I saw at Andermatt (Ent. Mo. Mag.; vol. vii, p. 109) was on a little willow, and not at the very summit.

Mountsfield, Lewisham: September 16th, 1872.

Vanessa Antiopa at Hitchin.—I observed a specimen of *V. Antiopa* last Saturday, the 24th inst., and, after a long chase, it escaped. Mentioning the matter to an entomologist here, I could not persuade him that I had not been mistaken, for he thought I had been deceived by one of the day-flying moths. To-day, whilst walking over his farm, he observed a very fine specimen of *Antiopa*, and gave chase, but, chancing to stumble in his pursuit, the *Antiopa* escaped, and will, I hope, breed in this locality. I am no stranger to this insect, having reared numbers from the larvæ, in Western Canada, on weeping willow.—FRANK LATCHMORE, Hitchin, Herts: August 28th, 1872.

Vanessa Antiopa at Lewisham.—My neighbour, Mr. P. H. Desvignes, brought me a living *Antiopa* on the 25th inst., which he had caught in his garden. He had seen the insect two or three days previously, but his first attempts at capture had always been unsuccessful. The specimen has every appearance of having hibernated.—H. T. STANTON, Mountsfield, Lewisham, S.E.: August 31st, 1872.

Vanessa Antiopa near Erith.—On Saturday last, August 24th, a specimen of *V. Antiopa* was taken here by Master N. Budden. It is worthy of remark that last year *Deiopeia pulchella* was taken by a little girl within a few hundred yards of the same spot.—J. G. WOOD, 9, Erith Road, Belvedere, S.E.: August 28th, 1872.

Vanessa Antiopa near Herne.—This afternoon, whilst walking with my brother through the Blean Woods, at about 200 yards distance from the "Fox and Hounds," we came suddenly upon a large dark butterfly, which, upon being disturbed, flew rapidly past us: for the moment I took it to be a large specimen of *Limenitis Sybilla*, but my brother, who saw it more distinctly than I did, assured me that it was a Camberwell Beauty; we followed it up for a short distance, when I had a second view of the insect, which flew past within easy reach of a net, had I but had one with me; there could be no mistake about it this time, for we both distinctly saw the white border and deep chocolate tint of *V. Antiopa*: it appeared to be in very good condition.—A. G. BUTLER, Herne: August 29th, 1872.

Vanessa Antiopa near Norwich.—It will doubtless prove of interest to my brother entomologists to be informed that this scarce butterfly (Camberwell Beauty) has again put in an appearance in this county, and that not singly. I had the good fortune to capture, on the wing, a female example in good condition on the 21st inst., and also made an unsuccessful attempt to net another shortly afterwards. On the 23rd, I again visited the same spot, and having read of the insects' partiality for sweets, I also took my sugaring pot with me. After well dressing some of the trees near at hand, I was rewarded by capturing two more beautiful specimens. On the 24th, I took a fourth example. They were all in such perfect condition, that I imagine they could not long have emerged from the chrysalis. As far as I can ascertain, the occurrence of so many of this rare insect at one time has not been recorded since the year 1847.—THEODORE H. MARSH, Cawston Rectory, Norwich: August 26th, 1872.

P.S.—August 27th, 1872.

Since despatching my notice of the capture of four examples of *Vanessa Antiopa*, two more have been taken in the same locality,—one by myself, and the other by my friend, the Rev. G. Norris, who accompanied me. They were male and female, and the latter has since ejected an egg, which is of a dull black colour, nearly round, but with a slight indentation on the top, and adhering to it are a number of black and grey hairs or scales. Should I be fortunate enough to get a larva from it, I trust to be able to record its appearance and habits.—T. H. M.

Vanessa Antiopa in Morayshire.—After having given me many an agreeable surprise in *Noctuæ*, my favourite Cossus-birch to-day fairly stunned me by yielding a magnificent pair of *V. Antiopa*.

Passing the tree, I saw a large butterfly flitting about which I at once recognized, and leaving a friend to "mark down" in case it wandered, I ran into the house for my net, when I soon had the beauty safe. Whilst engaged in showing the insect to several people who were attracted to the spot by my movements, my eyes wandered momentarily to the trunk of the birch again, and here another beauty sat expanding and closing its wings. This one allowed me to touch it with the net

before it would take wing. Both are quite fresh specimens, and, as in all the British captured specimens, have the margins of the wings white, and not yellow as in continental ones I took upwards of thirty years ago.

When I came into Morayshire in 1867, a youth described to me a butterfly he had seen so minutely, that I was sure it could be no other than *Antiopa*; but, not having seen the insect myself, I did not deem the circumstance worth recording:—now, however, I have little doubt this species has occurred in Forres before.—GEO. NORMAN, Cluny Hill, Forres: 26th August, 1872.

Vanessa Antiopa at Southend, Essex.—You may perhaps be glad to add Southend to the other localities where the ‘Camberwell Beauty’ has been seen this season. On Wednesday, the 28th August, I saw one flying very slowly near the eastern end of the cliffs. I was within 12 feet of it, and could not, therefore, be mistaken.—E. J. HIGGINS, 24, Bloomsbury Street: 5th September, 1872.

Vanessa Antiopa near Eltham.—A friend, residing a few miles from here, has just given me a specimen of *Vanessa Antiopa*, which he captured in his garden on the 1st instant.—A. H. JONES, Eltham, Kent: 5th September, 1872.

Vanessa Antiopa at Twickenham and at Hull.—My friend, Mr. E. Boscher, saw a specimen of *V. Antiopa* settle on the lawn in front of his house at Twickenham: it escaped before a net could be brought to bear upon it. Another specimen is recorded from Hull, in ‘Land and Water’ of Saturday, August 31st. From the numerous records of this insect in contemporary entomological publications, it would almost seem as though a swarm had crossed the channel, and was spreading over the country. The supposed criterion of an English specimen—the colour of the border—is, I am told, untrustworthy.—R. MELDOLA, Brentford: 3rd September, 1872.

Vanessa Antiopa at Cambridge.—We caught two specimens on the banks of the Cam, six miles below Cambridge, on the 24th August. We saw two more, but could not capture them.—J. F. SCOTT, 37, Manor Park, Lee, S.E., and G. M. REEVES, St. John’s College, Cambridge: August 31st, 1872.

Vanessa Antiopa near Leeds.—It may, perhaps, interest you to know that a fine specimen of *Vanessa Antiopa* was caught in the neighbourhood of this town a few days ago. It was brought me by an unentomological friend, who had knocked it down with his hat,—and it is now in my collection. It is, perhaps, rather *under* the full size, and the border of the wing is pure white, not yellow, as was the case with some specimens I saw in Switzerland, whilst on a tour in that country in June last.—ALFRED L. JOY, Ridge House, Woodhouse Lane, Leeds: 31st August, 1872.

Vanessa Antiopa near Folkestone.—On my return from Japan, I was much pleased yesterday to see *Vanessa Antiopa* on a tree affected by *Cossus*, and had five chances of getting it, as it did not fly far; but I failed, having no net.—G. LEWIS, West Terrace, Folkestone: 3rd September, 1872.

Vanessa Antiopa in Hyde Park.—On my way to town this morning, I saw *V. Antiopa* fluttering over the roadway, within a few yards of the end of Rotten Row, close to Hyde Park Corner; of course, I recognized it directly, and, at the second attempt, succeeded in securing it with my fingers. The specimen was rather worn.—J. E. BENTLEY, 12, Argyle Road, Kensington, W.: Sept. 7th, 1872.

Vanessa Antiopa in Leicester.—A fine specimen of this magnificent butterfly was flying about my brewery yard here to-day: it settled on a beer cask, but I failed to secure it.—FREDERICK BATES, 15, Northampton Square, Leicester: 3rd September, 1872.

Vanessa Antiopa at Tunbridge Wells.—*V. Antiopa* has been captured by more than one juvenile entomologist about here, and I have been fortunate enough to secure two; a male and female in fine condition: the latter I received alive.—H. BURNEY, Rosemont, Tunbridge Wells: September 7th, 1872.

Vanessa Antiopa in Surrey.—On the excursion of the Holmsdale Natural History Club to Cophthorne on the 24th ult., Mr. Gilbert took a fine specimen of *Vanessa Antiopa*. In the previous week, Mr. Gilbert captured another specimen at Box Hill, but, in consequence of his net having been caught in a bramble, the insect escaped.—SYDNEY WEBB, Red Hill: 2nd September, 1872.

Vanessa Antiopa in Middlesex.—On Saturday last (7th inst.), Mrs. E. W. Janson, who is well acquainted with this insect, observed a specimen of it hovering for some time over a sallow bush, as if for the purpose of ovipositing, in Highgate Wood. A niece of Mrs. Janson's has also recently seen at least two specimens, near Totteridge.—E. C. RYE, 10, Lower Park Fields, Putney, S.W.: Sept. 13th, 1872.

Vanessa Antiopa near York.—A very fine specimen was seen near here by my daughter, Mary Cornelia Morris, on August 22nd.—F. O. MORRIS, Nunburnholme Rectory, Hayton, York: September 14th, 1872.

Vanessa Antiopa at Ramsey, Hunts.—I have just heard from C. R. Bingham, Esq., of Ramsey Vicarage, Hunts., that he captured an *Antiopa* in his garden on the 3rd of September.—ID.

Vanessa Antiopa at Chatteris.—Mr. Alfred Fryer, of Chatteris, took a beautiful female in his garden on the 25th of August, and whilst he was killing it, his little son, Dan, caught another, a male, not quite in such good condition, but still a beauty.

The female specimen is really so fine, with the fringes perfect, and the wings so beautifully glossed, like "shot silk," that I should certainly say it was bred in this locality. I do not believe in the "flying-over" theory.

Both were taken at sugar on a pear tree.—W. FARREN, Howe House, Huntingdon Road, Cambridge: September 16th, 1872.

Vanessa Antiopa in the West Riding.—I have to record the occurrence of six specimens of *Vanessa Antiopa* in this part of Yorkshire. Three at Barnsley have been secured by Mr. James Jackson, two of which I have had the pleasure of adding to my own collection; one at Spa Mill, near Huddersfield, now in the collection of Mr. T. L. Moseley, of this town; one at Moor Bottom, Cleckheaton, in the possession of Mr. John Firth; and one at Bretton West has fallen to the lot of Mr. Jackson.

These were all taken during August or beginning of September in the present year; and, with the exception of the third Barnsley example, I have seen all the specimens.—GEO. T. PORRITT, Huddersfield: September 16th, 1872.

Vanessa Antiopa at Darlington, &c.—On the 14th inst., I had the great satisfaction of securing a magnificent specimen of *V. Antiopa*. There having been daily reports of its having been seen, I have looked closely after it, and received my reward. After all, when I had it in the net, I was sorry to have to pin the lovely creature. I took another example, but not quite so fine, on the following day.

A very fine one was taken at Saltburn the week before by a gentleman of this town; also, a worn one here a fortnight ago.—JOHN SANG, Darlington: *September 16th, 1872.*

Vanessa Antiopa, *Pieris Daplidice*, and *Argynnis Lathonia* near Folkestone.—A very fine specimen of *Pieris Daplidice* was caught on the Warren here on August 18th, and is now in my possession. I believe other specimens have been taken. *Vanessa Antiopa* was taken in the same locality on the 25th: I saw it while still alive. *Argynnis Lathonia* was captured in one of its old haunts (a clover field) near Dover Castle, by Master Marcus Yunge, of Folkestone.—HENRY ULLYETT, Folkestone: *September, 1872.*

Vanessa Antiopa, *Argynnis Lathonia*, and *Pieris Daplidice* at Dover.—It may interest some of your readers to know that the neighbourhood of Dover has come in for a good share of rarities this season: there have been no less than nine *Argynnis Lathonia*, four *Pieris Daplidice*, and two *Vanessa Antiopa* taken in and near Dover by different persons. One specimen of *Antiopa* was seen in the centre of the town, but not captured; another was seen near Folkestone last week.—GEORGE GRAY, 71, Castle Street, Dover: *26th August, 1872.*

Argynnis Lathonia near Ramsgate.—It may interest your readers to know that this season I have taken no less than five *Argynnis Lathonia* at a little distance from Ramsgate. I took one on the 30th ult., two more on the 3rd inst., and two more on the 6th inst. They were all taken within 100 yards of the same spot, and were, with the exception of one, very good specimens.—ARTHUR H. SNOWDEN, Grantsfield, Leominster: *August 24th, 1872.*

Zygæna meliloti.—At the meeting of the South London Entomological Society, held on Wednesday, August 7th, two specimens of this new *Zygæna* were exhibited by Mr. Boden, of 127, Tooley Street. They were taken (with other specimens) in the New Forest, during the present summer. Last year, when searching for *A. caliginosa* in its particular locality, Stubby Coppice, I captured two specimens which I took to be small *trifolii*; but, upon examination, they prove to be *meliloti*. I also found a cocoon of that species on the grass. The date of my captures is June 29th, 1871.—J. P. BARRETT, Hon. Sec., South London Entomological Society: *August, 1872.*

Acronycta alni, &c., at Lyndhurst.—It may be interesting to some of the readers of the Ent. Mo. Magazine to know, that I took a full-fed larva of *Acronycta alni* on a fence at Lyndhurst, on the 29th July last. The day before, I beat two larvæ of *S. fagi*; one off sallow, the other off oak.—J. EDW. WILBEX, 49, Downshire Hill, Hampstead, N.W.: *17th August, 1872.*

Note on *Crinodes Sommeri* and *Tarsolepis remicauda*.—In the last Numbers of the Ent. Mo. Mag., and Ann. Mag. Nat. Hist., I find a note by C. Ritsema, of

Leyden, accusing me of re-naming an old and well-known species of moth, *Crino Sommeri*, Hübner, under the new generic and specific names of *Tarsolepis remicauda*.

C. Sommeri is figured by Hübner in the second volume of his 'Sammlung,' at pl. 197; on pl. 196 is another species, *C. Beschei*, both sexes of which are correctly figured, and *this species* must certainly be considered the type of the genus *Crino*, subsequently altered to *Crinodes*.

Hübner states his figure to be a representation of a male insect, which its possession of a well-developed anal tuft of radiating scales goes a long way to prove. My insect is also a male, and differs from the insect figured by Hübner in the following important characters,—some of them generic, others merely specific.

Generic differences.—1. Antennæ of ♂ bearing about 43 well-developed pectinations. (In *C. Sommeri*, as figured by Hübner, and as exhibited by all the species of *Crino* in the British Museum, the antennæ of the ♂ are very feebly pectinated).

2. Two long tufts of carmine hairs springing from the base of the abdomen beneath the wings. (No such character occurs in *Crino*).

3. Palpi short and robust, scarcely projecting beyond the head. (In *C. Sommeri*, as represented by Hübner, the palpi are long, slender, and project considerably in front of the head).

4. Body robust, almost clumsy. (In *C. Sommeri*, the body appears to be comparatively slender, the abdomen, moreover, appears to bear spinous processes, as in *Checupa fortissima*, a Hadenid, figured by Moore, P. Z. S., 8, pl. vi, fig. 5, 1867).

Specific differences.—1. Costal border of front wings continuous from base to apex. (In *C. Sommeri*, it is restricted to the centre of costa).

2. Basal pale patches well-defined. (In *C. Sommeri*, they seem to be merely represented by the usual elongation of the basal scales).

3. Inner margin of front wings slightly convex. (In *C. Sommeri*, it appears to be undulated as in *C. fulgurifera*, a species evidently allied to it).

4. Hind-wings comparatively (to *C. Sommeri*) long and oval, with ill-defined central spot, and the central marginal line converted into spots; none of the marginal lines continuous.

5. Under-side of wings considerably paler than in *C. Sommeri*, the markings less defined.

6. Transverse band of front wings scarcely waved, and nearly parallel to the outer margin. (In *C. Sommeri*, this band is strongly angulated, so as almost to touch the discoidal cell).

7. Fringe of all the wings very short.

The conclusion at which I arrive from the above comparison is this:—inasmuch as all the members of the genus *Crinodes*, so far as we know them, are from the New World; as the males of the typical species, and of other species more nearly resembling the Javanese moth, are destitute of the abdominal tuft, and of the strongly pectinated antennæ; I consider myself fully justified in retaining the generic and specific names, *Tarsolepis remicauda*, for the moth so designated, and I should recommend that that name be attached to the other Javanese specimens known to Mr. Ritsema in place of the name *Crinodes Sommeri*, the type of which, in my opinion, will prove to be an American insect.—A. G. BUTLER, British Museum: September, 1872.

Rare insects from the Isle of Man.—In reply to Mr. Birchall's enquiries about the insects I saw in Mr. Gregson's collection, I may venture to suggest that the latter gentleman is the one to whom application should be made as to the localities of the species mentioned by me; but possibly, as the Island is rather small, he might hesitate to furnish the information desired. Mr. Gregson has already furnished the history of *Agrotis spinifera*; and I may add that Mr. Gregson sent this species and *L. exigua* to Mr. Doubleday just as pinned, and unset,—in fact, both were sent alive, and I have known this for years. *Micra parva* he took flying in the hot sunshine, if I remember rightly; however, I had all the particulars about each species from his own lips, and he had nothing whatever to do in deputing me to make known what treasures he possessed.

I wrote the article referred to on my return home, and, before sending it for publication, I sent it to Mr. Gregson to ask if he had any objections to my forwarding it, and also to correct me if I was wrong in any of the remarks. I did not keep a copy of my original paper, but I think the Editors will bear me out that I said all the specimens were taken by Mr. Gregson himself, except *Crambus alpinellus* and the new *Clostera*. In fact, the article was not inserted till I wrote to one of the Editors that I had Mr. Gregson's permission; and then, even when published, the communication was not *exactly* as I had written it, and my notice of Mr. Gregson having collected the larvæ of *Chærocampa Celerio* was omitted.—J. B. HODGKINSON, 15, Spring Bank, Preston: August 12th, 1872.

Depressaria Douglasella near Blackpool.—Early in June, about six miles from Blackpool, I met with the larva of *D. Douglasella*, and bred a dozen white-faced and white-headed specimens. A later journey to the same locality furnished me with two species I had never bred before, namely, *D. purpurea*, and (to-day) a fine *D. Yeatiana*.—Id.

Larva of Depressaria Yeatiana.—Hearing that Mr. Hodgkinson had bred this insect, I wrote to enquire on what plant he had found the larva. He says he found it on wild carrot, and that it was of a yellowish-green, not unlike the larva of *D. ciliella*. He assures me that there is no mistake about the food-plant, as he kept the larva on each plant separately.

He says the imago of *D. Yeatiana* is abundant on the Lytham sand-hills, at the roots of "the bent or star grass" as it is called.—H. T. STAINTON, Mountsfield, Lewisham: August 31st, 1872.

On the habits of the larva of Eupithecia togata.—On 5th July, 1871, I received from Mr. A. H. Jones, five eggs of this species, which had been given him by a friend who had taken the moth in Scotland. The larvæ hatched on the 9th, and, as I understood the moths were beaten from the spruce fir, I supplied them with twigs of spruce, as well as some knot-grass, and a few flowers, such as those of ragwort and golden rod. Two or three of the larvæ nibbled a little at the flowers and knot-grass, but soon dwindled and died. The other two attacked the spruce, *burrowing into the buds* which studded the ends and sides of the young shoots, but, unfortunately, in my attempt to watch their proceedings, I injured them so that they both died. However, early in July of the present year, Dr. F. Buchanan White, by

dint of hard work, obtained some eggs, some of which he kindly sent to Mr. Buckler, from whom they passed into my hands. Eight eggs reached me safely, and the larvæ hatched on July 18th; being now sure of the proper food, I gave them no choice, putting in only bits cut off from spruce shoots, which were furnished with buds. As before, three of the larvæ failed to find out their food in time, and were starved; the other five fed away at once, but, instead of attacking the buds, commenced operations by *tunnelling into the inner bark or liber at the cut ends of the shoots*; they never touched the outer bark or the needle-like leaves, but ate their way onwards,—in some cases for an inch or more, through the liber, until they reached a bud, into which they then burrowed. They ate rapidly, and their frass accumulated in proportion, some of it being extruded at the mouth of their tunnels, but they gave no other sign of their presence. How they would act in nature, I cannot say—whether they would ever open an outward passage, and so travel from bud to bud, or whether they would remain quite hidden after their first entrance; but I am sure each individual eats enough to destroy all the buds on a long, young shoot by the time it becomes full-grown. I left my larvæ undisturbed for some time, but about the 6th of August I saw one of them come out of its tunnel, and walk restlessly about; I then carefully examined all the other tunnels, but could find only one other larva, and that apparently dead. I now put in a fresh supply of spruce, placing both the living and the dead larva on it, and, when I next looked, I found the former busily engaged in finishing up the remains of its defunct relative; I concluded, therefore, it had also been the cause of the disappearance of the others, owing, perhaps, to its being deprived of tender food by the drying up of the juice of the spruce buds. After this, it fed away steadily on spruce, and moulted thrice, and on the 19th of August I sent it to my friend, Mr. Crewe; from him it was sent to Mr. Buckler, and fed away until 25th August, when it began to hide itself in some peaty soil, with which it had been supplied; on the 26th it disappeared totally, and by this time is, I hope, in pupa. It was supplied with bits of spruce shoots and bark, but it seemed to take naturally to the soil for pupation, so that it is probable in nature it would eat its way out, and drop or crawl to the ground, and the pupæ should be looked for at the foot of the trees.

The egg is very broadly ovate, much wider, although but little longer, than that of *castigata*; straw-coloured at first, afterwards becoming bright vermilion. The young larva when first hatched is something of the colour of the bark of a spruce shoot, being pale olive-brown; the head, plate on second segment, and anal tip being hard shining black; under a lens all the warts come out distinctly—black and shining, and furnished with hairs. After a moult or two, the colouring becomes much as it continues up to full growth, and the whole appearance of the larva—both in figure and tint—makes one see at once that it is an internal feeder, and at the same time very little like the larva of any other *Eupithecia* on our native list.—J. HELLINS, Exeter: 31st August, 1872.

Description of the larva of Eupithecia togata.—General colour dull pinkish-brown. Central, dorsal, sub-dorsal and spiracular lines whitish, indistinct, especially the two latter. Skin wrinkled; body sparsely studded with black tubercles and short hairs. Head and collar horny and glossy, dusky brown.

An odd, internal looking-animal, strongly resembling a miniature *Cossus ligniperda*.

Feeds inside the buds and young shoots of spruce fir. Hatched July 18th. Full-fed the last week in August.

I am indebted to the kindness of Mr. Hellins, of Exeter, for the opportunity of seeing and describing this hitherto, I believe, undescribed larva. Mr. H. reared it from the egg.

Mr. Buckler has succeeded in taking its portrait.—H. HARPUR-CREWE, The Rectory, Drayton-Beauchamp, Tring: *September 2nd, 1872.*

Natural History of Acidalia degeneraria.—On the 8th of August, 1871, I had the pleasure of receiving from Mr. George Harding, of Bristol, the welcome gift of eight young larvæ of this species, hatched on the 29th July from eggs laid loose in a box, on the 18th, by a much worn, captured female.

Mr. Harding also informed me that the eggs were pink in colour, and became darker and more dingy just before hatching, and that the newly-hatched larvæ differed in no respect but that of size from their appearance when consigned to me, having fed from the first on *Polygonum aviculare*. At this time, being ten days old, they were about three lines long, slender, and of a greenish-brown colour, and, when at rest, were generally in a looped position, but were remarkably timid, tucking their heads under and curling up into a close coil at the least alarm, and persistently remaining in this posture for a long time; their voluntary movements were very slow and measured.

By the middle of September they had changed their colouring to a rich cinnamon-brown above, and blackish beneath; on a close scrutiny for details at this time, they presented exactly the same design as hereafter described in the adult state; they now began to be lethargic, and to show symptoms of hibernating, but, as the *Polygonum* was still procurable, I often disturbed them with fresh food to incite them to eat, in the hope of getting one or two to feed up before winter; this at one time seemed probable, though with a change of colder weather they baffled my design by ceasing to feed and insisting on sleep.

In this state, and reduced to six in number, on October the 29th, they were transferred to a pot with growing plants of Dandelion, *Veronica polita*, and *Plantago lanceolata*, covered with coarse muslin and kept in a window seat facing west, in a room without fire; by this date, they had grown to eight lines in length, and were rather darker than before.

By the middle of February, 1872, I observed the plants in a dying condition, and a few indications of mould generating amongst the withered leaves, which, however, had not attacked the larvæ, resting as they were on the sides of the pot. I now took them out, and placed them in a new abode; and, the weather soon after being severe, I put them in another room with a fire, in order to try them with bramble, and soon had the pleasure of seeing them nibble at it, and also at *Cerastium* and *Veronica*, though the bramble seemed to be preferred: satisfied with this experiment, I then restored them to their former colder quarters, where they did very well, feeding a little from time to time, whenever the severity of the weather relaxed a little, and, by March 7th, two of them had quite outstripped their companions in growth, and by the 13th had attained apparently their full size, still, however, feeding a little until April, on the 15th of which month they assumed the pupa state; another followed their example on the 26th, one on May 8th, one more on the 26th, the last on June 30th: the four earliest appeared in the imago state from June 14th to 24th, and a fifth moth appeared on the 14th of July.

When about to change, the larva drew around it with a few fine threads a leaf of bramble or *Veronica*, or any withered bit of leaf or moss it found on the surface of the soil, and changed therein.

After hibernation, they seemed to have lost the power of curling up when disturbed, but now seemed to feign death by extreme rigidity, allowing themselves to be turned over and rolled about without betraying life by any movement; their natural posture, too, in repose on their food plants was straight and stick-like.

I could not help noticing how closely, both in form and general appearance, these larvæ of *degeneraria* came to those of *inornata*.

When full-grown, the larva of *degeneraria* is seven-eighths of an inch in length, broadest at the ninth segment, and from thence tapering gradually to the head (the smallest segment), the posterior segments taper but little to the rounded anal tip; the body is convex both above and below, and has a projecting rounded ridge along the sides, so that it appears somewhat flattened; the segmental divisions are well defined by the end of each segment projecting at the side, in breadth, beyond the beginning of the next; the skin is rugose, with about twelve sub-dividing wrinkles in each segment; the head indented on the crown.

In colour, the head is chiefly blackish-brown, conspicuously marked on the crown of each lobe with pale cinnamon or bright rust colour, which extends as a stripe down its outer side; a patch of the same colour is on the dorsal surface of the three following segments, being rounded at the sides on the second segment, triangular, and pointing backwards on the third and fourth; with these exceptions, the rest of the back, as far as the end of the eighth segment, is deeply suffused with dark brown, the remainder being again of bright rust colour, strongly contrasting with the darker hue of the middle segments; on the back of each segment, from the fifth to the ninth inclusive, are double darker brown markings, somewhat like Vs, pointing backwards, and standing one a little in front of the other at the hinder part of the segment, their limbs are curved outward soon after their commencement, and by degrees finely attenuated as they reach the next segment in front, each arm of a V being thus like a miniature willow leaf; in front of these, and embraced by their arms, is rather an elliptic shape of similar dark brown, and then a black square mark, close to the segmental division; both of these shapes are distinctly divided in halves by the thin pale greyish-ochreous dorsal line, which then vanishes, but re-appears as a pale spot or two within the base of the hinder V mark: the sub-dorsal line is of the same pale colour, and also appears only for a little just at each end of a segment, where it intersects a dark brown streak at the side of the back, slanting in a course parallel to the limbs of the Vs; on the hinder rust-coloured segments the markings are more tender, and on the last three are but imperfect diamond shapes of brown, the tubercular blackish dots being visible on them; a faint thin line of ashy-grey separates the colouring of the back from the blackish belly, which has on each segment three ashy-grey marks, together in form resembling a lyre, and two dots of the same grey colour at each end; the spiracles are black, and the tubercular warts and their short bristles are very minute, and rather numerous at each end of the body.

The only variations that occurred were, that one individual from first to last continued to be rust coloured, and that another became after hibernation wholly suffused with dark brown.

The pupa is three-eighths of an inch in length, plump, and tapering rapidly near to the anal tip, which ends in a blunt curved spike proceeding from a little flattened knob; its colour is chestnut brown.—WILLIAM BUCKLER, Emsworth: August, 1872.

Capture of a Scymnus new to the British list.—I was fortunate enough to meet with a *Scymnus* new to the British list, on the 24th of last month, while staying at my brother's house in Leicestershire (Shenton Hall, near Market Bosworth),—namely, the *S. arcuatus* of Rossi. I brushed it (along with *Atomaria peltata*, and a few other rather scarce species) from out of a mass of very old ivy, which clothed a wall, and it was so active with its wings that it well nigh eluded my grasp; but, although I visited the spot every day during the remainder of our sojourn, I could not secure a second example. It being an insect with which I am very familiar in the Atlantic islands (often abounding at Madeira), and one which I had always regarded as somewhat southern in its range, I confess that I was a little surprised to stumble upon it so far to the north as in Leicestershire; but I imagine that it is distributed, more or less, throughout central Europe likewise. I should have been less taken aback, however, had it been in the Isle of Wight, or elsewhere along the southern coast, in which it had made its appearance.—T. V. WOLLASTON, Teignmouth: September 10th, 1872.

Calosoma sycophanta at Plymouth.—A fine specimen of *Calosoma sycophanta* was taken by a friend of mine, Dr. Harper, last week. He saw it flying in Exeter Street, Plymouth, and, on its alighting on a wall, he caught it in his hand (receiving a nip from the insect), and carried it home in his glove.

I have heard of no instance of the capture of *sycophanta* in Devonshire since Mr. Reading took, far inland, the mutilated specimen, now in my collection; just ten years since, July, 1862.—J. BROOKING ROWE, 16, Lockyer Street, Plymouth: 31st August, 1872.

Note on further British examples of Baridius scolopaceus, Germ.—I have great pleasure in being able to record, that I have at last discovered the head quarters of *Baridius scolopaceus* in the Isle of Sheppy. Early in August last, I obtained it somewhat freely, by continually sweeping a small piece of salt marsh, close to the shore (and fully three miles from the original locality), the plants therein consisting of *Atriplex portulacoides*, *Suaeda maritima*, *Salicornia herbacea*, and *Artemisia maritima*. I am inclined to think the *Atriplex* is probably its food-plant here, as most of my specimens were obtained when sweeping that alone. *Aster tripolium* and *Arenaria maritima* (but no *Glaux*) grow sparingly in the locality; but I do not think the insect has any connection with these plants. It may be as well to note, that *Chenopodium maritimum*, the plant on which the *Baridius* was taken abundantly in France, last year, though closely allied to *Atriplex*, is not a native of Britain. *B. scolopaceus* seemed to prefer the hot sunshine, the sun probably bringing it up from the wet marsh beneath, as it was much harder to obtain in dull weather. I also noticed that it readily flew about, and copulated freely. I have spent a long time searching the roots of the plants in the locality, in hopes of thus determining, for certain, its food plant; but not a single specimen could I obtain in this way; the wet ground beneath, or higher up where drier, the quantity of tidal refuse,

looking, certainly, anything but likely for it. I am sorry the specimens obtained are apparently all abraded, being nothing near so densely scaled as my original specimen, from which the species was figured in the last 'Annual' (there being scarcely any signs of the ochreous scales). It also runs much smaller in size than I expected, averaging about that of *Mecinus circularis*.

I expect I was too late to get it in its best condition. June (the time of capture of the original specimen) is probably the time to get it fresh; and it doubtless soon gets abraded.—G. C. CHAMPION, 274, Walworth Road, London, S.: Sept. 4th, 1872.

Captures of Coleoptera in Kent, &c.—The following notes on some rare *Coleoptera* are partly supplemental to the last list published by me in this Magazine, and partly the result of investigation in other localities subsequently visited.

That the actual soil of a locality is not of great importance, if its situation be good, the fact that I have reaped a good harvest from the margins of a little shallow pit near my house here may show; for, though the clay is of the stiffest wealden, yet the insects of the green sand of the north side, and of the Forest of St. Leonard's on the south, find here, I conceive, a "half-way house" within reach. Thus, among the first that greeted me here were *Bembidium quadripustulatum* and *Sturmii* (but two of the first, however, and one of the second). *B. obliquum*, found on the Forest, round gravelly pools, has not penetrated as yet to Rusper. *Anchomenus versutus* seemed also a visitor;—*Anch. gracilis*, *Conurus immaculatus*, *Donacia bidens*, and *Stenus exiguus* are among the more distinguished of the company, while *Stenus morio* (hitherto almost unique as British) seems to have effected a settlement, as I have secured a moderate series from the above-named pit. Of this species, Mr. Janson (its original recorder as British) had two, there is one in Dr. Power's collection, and one in my own: Mr. Rye also tells me he has long had a specimen identical with Mr. Janson's. These, however, are all the specimens I am aware of.

Early in the year, St. Leonard's Forest itself produced a few good things: viz., *Epurea parvula*, under birch bark, *Agathidium seminulum*, *Phlæocharis*, *Bitoma*, in abundance, *Homalium planum*, *Leptura nigra* and *Stenus contractus*, in their respective habitats.

A stay last summer at Eastry, near Sandwich, gave me an opportunity of capturing many of the Deal sand-hill insects, of which I will only particularize the more interesting, as the insects of that place have been so often recorded. Here I may correct an error which has crept into the record of *Omius pellucidus*, in the Ent. Annual, 1872, p. 45. The locality should be at Eastry. When I first found it, it was in great numbers crawling in the sandy gravel by the side of the road. The dead bodies of hundreds, and thoracic and femoral development of the males, testifying to the severity of the struggle for existence.

Of the very rare *Athous difformis*, I here got three males and one female, and also *Saprinus virescens*, vainly mimicing *Phædon cochleariæ*, the larvæ of which it feeds on, upon beds of water-cress, over which *Stenus major* not rarely ran. Sweeping produced two of a *Ceuthorhynchideus*, easily distinguished by its thorax contracted very much in front, its cinereous elytra, and reddish tarsi; this Mr. Rye tells me is the species known here as *hepaticus*, Gyll. *Telmatophilus sparganii* and *brevicollis*, *Telephorus figuratus*, *Sunius intermedius* and *Pæderus littoralis* may conclude the list, though by no means exhausting the good things taken here.

I must now bring my notes to an end with a few odd mems. from my diary.

From Bearsted, I have *Stenus palustris*, and from Enfield, *Cryptarcha imperialis*, *Phlæophilus* and *Ptinus subpilosus*. At Southend, *Myrmedonia Haworthi* gladdened my eyes; but of two taken, one, alas! alone reached home, the other being entombed in glass somewhere near Prittlewell Church (where I lost my bottle).—H. S. GORHAM, Rusper, Horsham: August 14th, 1872.

Strange habitat of Licinus silphoides.—This Box-Hill species is now in great profusion on the beach near Hythe.—G. LEWIS, West Terrace, Folkestone: 3rd September, 1872.

Saltatory power of Rhinoncus subfasciatus.—When sweeping by the side of a ditch at Bognor, where *Rhinoncus subfasciatus* was tolerably abundant, I was not a little surprised to see an individual of that species jump. At first I naturally thought it must be some mistake on my part; but, on sweeping again, catching more, and lifting up the bottom of the net carefully, I found I was not deceived, as several specimens jumped, and many times when collecting where this species was abundant, I witnessed this curious fact.

The leap is but a short one, varying from about half an inch to one and a-half inches, and appeared to be effected by a sudden retraction of all the legs.

Any person who has seen this insect alive, and noticed its quick and sudden movements, will not be surprised that the sudden *shutting up* of its legs should throw the insect up into the air; at any rate, this seemed to me the way in which the leap was effected, the feat being, possibly, performed more by accident than design.—EDWARD A. WATERHOUSE, British Museum, W.C.: September 6th, 1872.

Unusual abundance of Niptus hololeucus.—This insect so abounds in the house of my Vicar, the Rev. J. W. Sheringham, of Standish, Gloucester, as to be a perfect nuisance. The family thought it to be a spider, and accuse it of eating flannel, cloth, &c. They tell me they have swept it from the floors in *hundreds*, and cannot get rid of it, though they have somewhat thinned its numbers by the use of carbolic acid soap. Although one of the *Ptinidæ*, its build evidently shews it to be no wood-borer; still, occurring in such profusion, it may really be of harm to such material as that above mentioned. It seems to follow man, never occurring, so far as I know, in open country.—ALEX. NASH, The Glebe House, Hardwicke, Gloucester: September, 1872.

Captures at Weybridge.—On the occasion of the excursion of the Entomological Club on the 29th June last, among many other insects not deserving special notice, I captured *Ceuthorrhynchideus pumilio* on *Teesdalia nudicaulis*; *Sybines potentillæ* under *Spergula arvensis*; *Dictyonota Fieberi*, larvæ on broom bushes: all found under the guidance of Dr. Power to their exact localities. *Cardiostethus testaceus*, by sweeping long grass; *Butalis cicadella*, one, from a furze bush.—J. W. DOUGLAS, Lee: 5th August, 1872.

Note on Agrothereutes Hopei, Gr.—Every observation tending towards the discovery of the dissimilar sexes of the smaller *Cryptidæ* deserves careful attention, as

only accidents, few and far between, can ever elucidate a difficulty of this description. One of these accidents occurred to-day. I took, in very close juxtaposition, *Cryptus pygoleucus*, Gr. (♂ only known) and *Agrothereutes Hopei*, Gr. (♀ only known). Both are not uncommon here. That they are the opposite sexes of the same species I am strongly inclined to believe, though absolute demonstration is impossible. They resemble each other, and also differ, exactly in those points which are noticeable in the sexes of other species. The ♂ is, as usual, darker, and has the thorax black. The ♀, with imperfect wings, has the red thorax so often associated with that feebleness of structure. The hind legs (with the femora tipped with black, and a white ring at the base of the tibiæ) are the same in both, and this character, which is independent of sexual differences, appears to have much weight, taken in conjunction with the fact of the insects being in company, and having apparently some attraction for each other.—T. A. MARSHALL, St. Albans: August 29th, 1872.

Formica fusca: two ♂ in copulâ with one ♀.—This morning, at 8.50, during bright sunshine, what I at first took simply to be a united couple of this ant, crossed my road on the wing. But, as it struck me that there was something wrong, owing to the drooping flight of the ♀, which seemed to be more than usually burdened, I caught the travellers, when it appeared that the ♀ was in simultaneous copulation with two ♂ aside of each other. I let the happy trio run over my hand, or, rather, allowed the ♀ to drag her mates along with her, when, toppling over, she fell to the ground, where she immediately parted with her wings, but continued to drag her helpless winged partners along with her, right across a broad stony road. The ♂ seemed utterly exhausted; and made no attempt to use either wings or legs; nor did they fold the former or draw up the latter, but in the position in which they dropped they were dragged away. The rest of my proceedings I shall keep to myself; suffice it to state, that gentle pulling was not enough to sever the triple alliance.—ALBERT MÜLLER, South Norwood, S.E.: August 18th, 1872.

Proposed revision of the Trichopterous family Hydroptilidæ.—I am engaged upon a revision of the *Hydroptilidæ*, and solicit the loan of specimens from all parts of the world, so that I may gather information respecting the geographical distribution of the genera and species. In return for the privilege of inspecting them, I will undertake the arrangement of collections sent to me, and defray half the expense of transmission. Even a few specimens in good condition would be gladly received. Boxes by post should be sent to my address as under; those by rail may be addressed to me, at the Entomological Society, 12, Bedford Row, London. Up to the present time, I have determined nine British species, and five genera, in the place of the four species and two genera hitherto recognised. Some of these occur also on the continent, where a sixth genus is represented. Specimens from the Rhine, Sweden, and Canada, would be especially welcome on the chance of their comprising examples of some described forms of which I have seen few or no representatives. As a rule, I would prefer to leave new species un-named, unless they be represented by series of specimens in good condition, from which trustworthy figures of the anal appendages could be obtained. Colour characters are at a discount in most of the species of this family.—A. E. EATON, Pottesgrove Rectory, Woburn: September, 1872.

DESCRIPTION OF A NEW GENUS AND TWO NEW EXOTIC SPECIES
OF THE FAMILY LARRIDÆ (HYMENOPTERA).

BY C. RITSEMA.

PIAGETIA, *g. n.*

Head transverse, a little wider than the thorax, truncated and excavated behind; face a little prominent; eyes large, oval, their inner orbit straight; only one well developed ocellus; antennæ filiform, inserted at the base of the clypeus at a little distance from each other, the scape fully as long as the two first joints of the flagellum; mandibles notched exteriorly near the base, not (?) toothed within. Prothorax narrower than the mesothorax, produced into a neck, which is received into the excavation of the head, posterior margin bowed backwards in the middle; metathorax elongate, of about equal length to the mesothorax, truncated posteriorly, the sides a little wider at the base. Intermediate tibiæ with a single spine at the apex; posterior femora with a stout, curved tooth (♂) or with a little tubercle (♀) at the base, flattened if not excavated beneath. Anterior wings with one marginal cell truncated and appendiculated at its apex, and three submarginal cells, the first longer than the two following, the second, which receives both recurrent nervures before its centre, narrowed towards the marginal cell, the third lunate. Abdomen a little shorter than the thorax, heart-shaped, petiolate; the first segment conical, and at the under-side (especially in the male) with a scale-shaped transverse appendix; the second segment the largest.

The genus here described agrees with *Larrada* and *Larraxena*, Smith, principally in having only one well developed ocellus (the posterior pair being obsolete), and in the elongated and truncated metathorax; but it differs from them in having the first submarginal cell longer than the two following united, a character in which it agrees with *Morphota*, Smith; the latter, however, has the second submarginal cell triangular, and three distinct ocelli. The neck-shaped prothorax, the petiolated heart-shaped abdomen, and the armed hind femora, remove it from all the hitherto described genera of this family with three submarginal cells. The genus *Aulacophilus*, Smith, which has only two submarginal cells, has also a petiolated heart-shaped abdomen, but the petiole is longer than in *Piagetia*.

P. WOERDENI, *sp. n.*

♂. Length 8 mm. Head black, antennæ, clypeus, cheeks, and mandibles ferruginous, the latter black at the tips; clypeus, cheeks, base of mandibles, and of the exterior orbit of the eyes, thinly covered with short silvery pubescence, and the face

with grey, the latter having three longitudinal grooves, one between the antennæ, and extending from the base of the clypeus to the ocellus, the two others, broader and much shorter, on each side of the first; clypeus with a longitudinal central carina, the anterior margin produced and deeply curved in the middle, the angles a little acute. Thorax ferruginous, the posterior margin of scutellum, the post-scutellum, the mesothorax beneath, and the metathorax (except the sides and two large triangular spots with their tops uniting between the disc and the truncation), black; the metathorax finely shagreened above, with a longitudinal central line, the truncation smooth and shining, with a longitudinal oval groove in the centre. Wings hyaline, with a beautiful whitish-blue iridescence in certain lights, and with a fuscous cloud at the apex, beginning with the marginal cell, the second submarginal cell, &c.; the tegulæ and the costal nervure before the black stigma pale ferruginous, the other nervures dark fuscous. Legs ferruginous, except the upper-side of the intermediate and posterior coxæ and trochanters, and of the base of the intermediate femora and metatarsi, which is black; the inner-side of the posterior femora, the upper side of the posterior tibiæ, the posterior metatarsi, and the apical spines of the intermediate and posterior tibiæ, are also black. Abdomen black and shining, the apical segment dark fuscous; the posterior margin of the segments very thinly covered with short grey pubescence.

Sent from Congo (South West Africa) by the late Mr. M. G. van Woerden (in Dr. E. Piaget's collection).

P. RITSEME, *sp. n.*

♀. Length about 10 mm. Head and antennæ black, the anterior half of the

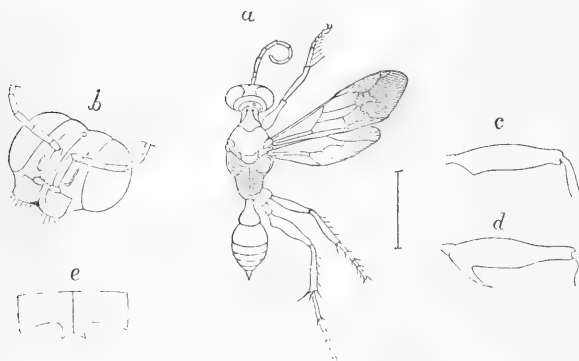


fig. a.—*Piagetia Ritsemæ*, mihi, ♀.
 „ b.—Head of ditto „ ♀.
 „ c.—Hind leg of ditto „ ♀.
 „ d.—Hind leg of *P. Woerdeni*, mihi, ♂.
 „ e.—Clypeus of ditto „ ♀.

clypeus, the scape of the antennæ in front and the mandibles, pale ferruginous, the latter black at their tips; clypeus, scape in front, cheeks, base of mandibles and of the exterior orbit of the eyes, densely covered with silvery pubescence, and the face thinly with grey, the latter having three longitudinal grooves; one between the antennæ and extending from the base of the clypeus to the ocellus, the two others,

broader and much shorter, on each side of the first; the clypeus with a longitudinal central carina, the anterior margin slightly curved in the middle, the angles rounded. Thorax black, smooth, and (except the scutellum) not shining; the mesothorax with a little circular pale ferruginous spot beneath the anterior wings, the under-side, and

also the intermediate and posterior coxæ and trochanters, covered with silvery pubescence; the disc of the metathorax with a fine transverse striation, interrupted in the middle by a longitudinal line, which does not run to the verge of the truncation; the truncation densely covered with silvery pubescence, and with a longitudinal oval groove in its centre. Wings hyaline, with a beautiful whitish-blue iridescence in certain lights, and with an interrupted fuscous cloud at the apex, beginning with the marginal cell, the second submarginal cell, &c.; the tegulæ pale ferruginous, the stigma black, the nervures dark fuscous. Legs ferruginous, with the upper-side of the anterior and intermediate coxæ and trochanters, and of the apex of the posterior femora, the posterior coxæ and trochanters, and the apical apices of the intermediate and posterior tibiæ, black; and the posterior tibiæ and tarsi blackish. Abdomen black and shining, the posterior margin of all the segments and the base of the second very thinly covered with short grey pubescence; the posterior margin of the first segment, and also the apical segment, dark fuscous, the latter closely punctured, and terminated by a style which encloses the aculeus.

Sent from Soerabaya (East Java) by my brother, M. L. Ritsema (in the collection of the Royal Museum at Leyden).

Leyden : September 25th, 1872.

DESCRIPTION OF A NEW SPECIES OF *APHIDIUS* FROM BRITAIN.

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

So few of the numerous species of this group have been described, that it is easy to detect a new form. The following has been compared with every extant description:—

APHIDIUS GREGARIUS, *sp. n.*

Antennæ ♀ 20-, ♂ *circiter* 25-articulatæ. *Caput transversum, thorace latius. Palpi maxillares* 4-, *labiales* 3-articulatæ. *Mesothorax sulculis ordinariis nullis. Metathorax non excavatus. Alarum cubitales tantum* 2, *quarum prima cum discoidali confusa. Segmentum primum abdominis medio constrictum, postpetiolo tumidiusculo, scabriculo. Terebra lata, haud incurva, perbrevis exserta. Luteus; antennis (articulo 1^o excepto), capite, mesothoracis disco, et metathorace plus minus, nigris. Stigma et nervi cubitales (in vivo) viridia.* ♂ ♀ *Long. lin.* 1 $\frac{1}{3}$.

The abdomen is a paler testaceous than the rest, and the hinder edges of the segments are tinged more or less with fuscous. The petiole is often black or brown. Terebra black. Nervures of the wings fuscous, except those forming the rudimentary cubital cells, and the stigma, which, when the insect is alive, are pale green. The areola is open behind, from which it results that there are only two cubital cells, and the first is not divided from the discoidal. The black colour on the mesothorax is indistinctly trilobate, the middle lobe or spot shorter than the other two, leaving a luteous space before the black scutellum. The hind coxæ at the base, the hind femora, and the hind tarsi, are more or less fuscous.

This is a parasite of the *Aphis* of the poplar and willow, numbers of which were found assembled at the base of the shoots of trees at Kentish Town, by Dr. Knaggs, in the present month. *Aphidius salicis*, Hal., is found in the same situation, but is a different species; see Ent. Mag. ii, 102, and note. With *A. gregarius* were several specimens of another parasite. This is *Ceraphron (Lygocerus) Carpenteri*, Curtis. I had often seen this species, but never traced its origin, though Curtis says he bred it from 'female' *Aphides*. Of course it attacks only those *Aphides* which are already pierced by an *Aphidius*, having for its object the larvæ of the latter.

St. Albans : September 26th, 1872.

NOTES ON BRITISH *TORTRICES*, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY C. G. BARRETT.

The publication of Drs. Staudinger and Wocke's Catalogue of the Lepidoptera of the European District in 1871 caused such a revolution in the existing nomenclature, that a good deal of confusion is likely to be caused in some groups by the indiscriminate use of two sets of names.

This is especially the case with the *Tortrices*, and as Mr. Wilkinson, in his 'British *Tortrices*,' made no attempt to go into their synonymy, I have thought that a few notes on changes of nomenclature, with notices of undescribed species, and observations made since the appearance of that work, may possess some interest, and perhaps conduce to a more thorough knowledge of our British species.

In preparing these notes, I have constantly received most valuable assistance from Mr. Stainton and Professor Zeller; while Messrs. Doubleday, McLachlan, Howard Vaughan, Machin, Birchall, and Sang, Rev. Henry Burney, Dr. Buchanan White, and other friends, have liberally entrusted me with their rarest and most interesting species for examination, and have given me much valuable information upon them.

As far as possible I purpose following the arrangement of Wilkinson's work, as it is more the basis upon which I must work than is Doubleday's list. I am prevented from adopting the new arrangement of Dr. Wocke by the difficulty I feel in adopting such a genus as his *Penthina*, which, commencing with our *Pædisca profundana*, includes our *Brachytænia*, *Penthina* proper, *Euchromia*, *Orthotænia*, *Mixodia*, *Roxana*, the larger species of *Sericoris*, and *Sideria*.

Sarrothripa Revayana, Schiff.—This species is removed by Dr. Staudinger and other German authors from the *Tortrices*. In Staudinger's Catalogue it stands at the head of the *Bombyces*, following immediately after the *Syntomidæ* (*Naclia ancilla* and its allies), and is followed by *Earias vernana*, *insulana*, and *chlorana*, and *Hylophila prasinana* and *bicolorana* (*quercana*), forming, with two more genera, the family *Nyctæolidæ*. The name there adopted is *undulana*, Hüb.

Amphysa Gerningiana, Schiff.—Apparently a misprint in Wilkinson for *Gerningana*—the correct name. Professor Zeller says—"It occurs where there is no *Vaccinium*, but always *Calluna*, so that may be its principal food-plant."

Amphysa prodromana, Hüb.—Wocke quotes *Walkerana*, Curt., as only a synonym. Wilkinson gives no time of appearance, Stainton's Manual gives July, but Zeller says that he took it in April, and believes it flies generally early in the year. Probably there may be two broods. Hübner represents the larva on a species of willow. Stainton's Manual gives as the food-plant "Sallow?" but M. Jourdeuille, in the 'Calendrier du Micro-Lepidopteriste,' *Potentilla anserina*.

Hypermeccia augustana, Wilk.—This is *cruciana*, Linn., as pointed out by Mr. Doubleday (Ent. Ann., 1870, p. 142). It is very variable in size and colour, but the basal patch on the fore-wing seems always to be dusky greyish. This colour frequently invades the other markings, and a specimen sent by Mr. Hodgkinson, and bred from dwarf sallow at Lytham, Lancashire, is very small, and has all the markings pale drab. Mr. Hodgkinson informs me that this is its usual character in that locality.

Large and brightly marked southern specimens frequently show faint traces of silvery lines bounding the fasciæ, as in the next species.

Hypermeccia augustana, Hüb.—Recorded as British (Ent. Ann., 1870, p. 141). Taken at High Force, Durham, by Lord Walsingham. One specimen taken in Scotland by Dr. Buchanan White. As it is not described in any English work with which I am acquainted, I append a description taken from the original specimens kindly lent by both captors.

Alar. exp. 4—5 lines. Head and palpi pale ochreous. Antennæ grey. Thorax chestnut-brown, paler at the sides. Fore-wings narrow, pale ochreous, with the markings bright chestnut, well defined, and edged with delicate silvery lines. Basal patch distinct, rounded posteriorly. Central fascia narrow, rising at the middle of the costa and proceeding to the anal angle, where it is slightly attenuated. Apical blotch nearly round; below it a small spot on the apical margin. Cilia pale ochreous. Hind-wings dark greyish-brown.

Distinguished from *cruciana* by the chestnut-coloured basal patch, which is not produced so obliquely to the inner margin as in that species, the narrow fascia, the pale hind margin, and distinct apical spot, but especially by the narrowness of the wings towards the apex. Much like *Pamplusia monticolana* (*mercuriana*), close to which both species are placed by Wocke in the genus *Steganoptycha*. As in that species, the silvery lines seem uncertain and evanescent. I suspect that this species has been overlooked. Mr. Stainton tells me that he has a specimen taken at Kilmun, and Mr. Dunsmore that he has taken it near Paisley.

Eulia ministrana, Linn.—Placed by Wocke in the genus *Lophoderus* with *Tortrix ochreana* and *Cnephasia politana* and *cinctana*. Zeller says the var. *ferrugana* seems to prefer the coast.

Brachytænia semifasciana, Haw.—Included by Wocke in *Penthina*.

Brachytænia Hartmanniana, Linn.—Changed by Wocke to *scriptana*, Hüb., but it is difficult to understand why, as Linné's name is long anterior (1761). He quotes *nubiferana*, Stephens as a variety. This also is hard to understand, as it is certainly a variety of *variegana* (*cynosbatella*).

Antithesia corticana, Hüb.—Wocke gives *picana* only as a synonym. It is certainly long posterior, and the existence of another *corticana* in another genus (*Pædisca*), although it would be a reason for not giving the same name to a new species, does not seem to me sufficient to warrant the suppression of a name already given.

Antithesia betuletana, Haw.

Antithesia capreana, Hüb.

Antithesia prælongana, Gn.—Corrected by Wocke to *sororculana*, Zetterstedt. This Professor Zeller confirms. It has been bred from birch by Mr. Chapman, of Glasgow.

Antithesia Grevillana, Curt.—A distinct species, well figured by Curtis. Wilkinson's reference of this figure (p. 25) to *prælongana* is altogether erroneous, not to say absurd, as it does not at all resemble that species.

Curtis describes it as follows (Brit. Ent., fo. 567):

"Greyish-black. Head and apex of abdomen sub-ochreous, superior wings long and narrow, variegated with interrupted black transverse lines and spots. A large space at the apex white, forming two claws on the internal margin, with a long, grey, oblique line arising at the posterior angle, and furcate at the extremity. The apex black, with white dots forming two oblique stripes. Cilia black. Inferior wings yellowish-fuscous, palest at the base, cilia of the same colour.

"Distinguished from its congeners by the narrower wings, which give it a more elongated form, and the cilia of the upper wings are not so black in any of the other species.

"Captured in July in Sutherlandshire."

The only specimen which I have seen was taken by Dr. Buchanan White in Scotland. Its long, pointed fore-wings of a dull black for *three-fourths* of their length, and with the apex and cilia also almost entirely black, and its comparatively *narrow* white band before the apex, give it a character very distinct from the allied species.

Antithesia ochroleucana, Hüb.

Antithesia cynosbatella, Linn.—Wocke sinks this name in favor of *variegana*, Hüb., quoting Linné's *cynosbatella* as a doubtful synonym. Zeller says "Linné's *cynosbatella* is ill-characterized, and feeds "in a *Rosa*, from which I never had this very common species."

Antithesia pruniana, Hüb.

Antithesia dimidiana, Treitschke, Sodof.—*ochromelana*, Gn., is a much later synonym. M. Jourdheuille states that the larva feeds on beech and lime: this is most likely an error. It has been bred in plenty by Mr. Chapman, of Glasgow, from *Myrica gale*.

Antithesia marginana, Haw.—Wocke changes this to *oblongana*, Haw., because Haworth's description of *oblongana* (the ♀) is placed before that of *marginana* (the ♂).

Wilkinson is mistaken in stating that this is "A rare species, and not variable." It varies considerably in size and a little in colour, and is far from scarce, occurring commonly in many woods, heaths, and even fens. It most likely feeds on various *Compositæ*, as it is found where no *Dipsacus* grows within many miles. Dr. White has found it very large and fine on Scotch mountain heaths.

Antithesia similana, Wilk.—Wocke sinks this (with a ?) into a synonym of *oblongana*: it certainly is nothing else. Mr. J. Jenner Weir has kindly placed in my hands some of the original specimens, and they differ in no respect from the ordinary small specimens of *oblongana* found always with the larger ones.

Antithesia sauciana, Hüb.

Antithesia Staintoniana, sp. n.

Alar. exp. 8 lines. Head, palpi, and antennæ greyish-brown, thorax blackish-brown, dusted with pale ochreous. Fore-wing: costa arched, with sharply angulated square apex and truncate hind margin. Ground colour pale cream, with the basal

two-thirds dark bluish-brown, the portion between the basal patch and central fascia being paler, and showing the ground colour near the costa. Basal patch, with its outer margin, angulated near the costa, thence perpendicular to the dorsal margin. Outer margin of central fascia indented with the usual pale hook in the middle. In the pale apical third is a faint brown line, followed by a narrow brown cloud before the apex. Cilia cream-coloured, spotted with brown, and with a dark line at the base.

Hind-wings grey, with paler cilia.

♀ with the cream colour tinged with pink, and the outer margin of the basal patch oblique and nearly straight.

Allied to *sauciana*. About twenty specimens were taken in 1869 by Mr. Eedle, on mountains in Perthshire, among *Arctostaphylos uva-ursi*, and were distributed into various collections under the name of *Grevillana*.

The description is made from males in the collection of Mr. Doubleday, and from a remarkably fine and perfect female in that of Mr. Machin.

Professor Zeller says of this species "I think it distinct both "from *sauciana* and *Grevillana*, and do not know a name for it. So "you may publish it as a new species: I never saw it before." It gives me particular pleasure to have the opportunity of naming so handsome a species in honour of my friend Mr. Stainton, to whose kindness I am constantly indebted, and who has so well earned any honour there may be in it by his labours among the *Tineina*.

Antithesia gentianana, Hüb. — Wocke alters this to *gentiana*, Hüb., referring to Hübner's figure of the larva, which represents it feeding on teasle. This deprives it of connection with the Gentians, which was evidently aimed at by the name previously in use, as well as by the more laboured *gentianæana* of Hübner and Wood, but this is of slight importance, since the larva feeds in the heads of *Dipsacus*. Professor Zeller says that the food certainly varies, since small specimens occur where no *Dipsacus* grows. This species is best separated from its allies by its broad wings and stout thorax.

Antithesia sellana, Hüb. — Mr. Doubleday tells me that the larva feeds in heads of *Centaurea nigra*: he also points out that this species may readily be separated from its nearest allies (*gentiana* and *oblongana*) by the peculiar round apex of its short anterior wings. This is very evident in specimens communicated by him.

Antithesia ustulana, Haw. — Wocke sinks this name (as does Doubleday his *Carbonana*) in favour of *fuligana*, Hüb., which is

unquestionably the anterior. Some very fine and well-marked specimens (one of them having even a pale apical space in the fore-wing) were reared, three years ago, by Lord Walsingham, from larvæ found feeding in the stems of *Stachys palustris* in the Cambridgeshire fens. A closely allied species (sent by Professor Zeller, though probably in error, under the name of *Remyana*), with straight fascia, seems to frequent the *Stachys* in Germany.

Penthina salicella, Linn.

Sideria achatana, Fab.—Professor Zeller tells me that this species feeds on sloe. M. Jourdheuille states between leaves of hawthorn and fruit trees. Mr. Stainton assures me the insect swarms sometimes with him on a hawthorn hedge.

Dichelia Grotiana, Fab.

Dichelia gnomana, Linn.—Description :

Alar. exp. 9 lines. Head and antennæ reddish-ochreous. Palpi ochreous within, brown exteriorly. Thorax ochreous. Fore-wings shining ochreous, faintly reticulated with reddish-brown, and with the markings reddish-brown. Basal patch faintly indicated on the costa and inner margin. Central fascia most distinct on the costa, and running obliquely in a narrow line to the middle of the wing, where it forms a sharp angle towards the base, returning again (in a parallel direction to the upper portion) to the inner margin. The central angulated portion of this fascia is, however, in most specimens obliterated, leaving the oblique streaks on the costa and inner margin. Before the apex is a broad flattened spot on the costa. Cilia ochreous, faintly spotted with grey. Hind-wings whitish, tinged posteriorly with grey. Cilia whitish.

Some time ago the Rev. Henry Burney sent me for examination three specimens under the name of *Tortrix latiorana*. These I at once found to be *gnomana*. On enquiry, he told me that they had been sent him, fourteen or fifteen years ago, as varieties of *Tortrix costana* by Mr. J. B. Hodgkinson. On further enquiry of Mr. Hodgkinson, it appears that they were taken with other *Tortrices* by a local collector, and sent to him as *Tortrix costana*; but he cannot now remember where they were taken. Under these circumstances, I venture to insert *gnomana* as an addition to the British list, as there can be no doubt, I think, of their nativity. *Gnomana* is a common species abroad, and very likely to occur here. It has already been in our lists, but apparently a variety of *Peronea ferrugana* has been mistaken for it.

Cenectra Pilleriana, Schiff.—Zeller says "I bred it from *Dictamnus*

"*albus* from Vienna. Its principal food is vine, but it will probably "feed on any plant." M. Jourdheuille says *Stachys germanica*. Mr. Stainton bred it this summer from larvæ sent to him from the South of France on *Asclepias vincetoxicum*.

Clepsis rusticana, Treitschke.—German specimens of this species are larger than ours.

Norwich: October 9th, 1872.

NOTE ON OUR RECENT INVASION BY *VANESSA ANTIOPA*.

BY F. BUCHANAN WHITE, M.D.

More than half inclined as I am to accept Mr. Stainton's theory of the Scandinavian origin of the numerous specimens of *Vanessa Antiopa* that have been captured or seen in Great Britain during the past autumn, yet it occurs to me that a word or two might be said against the "flown-over" theory.

1st.—Although most of the specimens recorded were seen on the east side of the country, yet this may only show that *V. Antiopa*, like several insects and plants which there can be no doubt are indigenous, has a greater preference for the east, than for the west, side of the country.

2nd.—Mr. Stainton notices the relative distribution of the white-bordered and the yellow-bordered forms, and shows that, if the specimens in question are immigrants, they must have come, most probably, from Norway.

On the other hand, might it not be argued, that (supposing *Antiopa* were not known to have occurred in Britain) the similarity between the Scandinavian and British Faunas would lead one to predict that the form which might be expected to occur (at least in the north of England and Scotland) would be the white-bordered one.

Or again, seeing that the majority of the records (both past and present) of this species are from the north-eastern counties of Britain (I have records from almost every eastern county of Scotland, from Berwickshire to Morayshire), is it not more probable that the northern, rather than the southern, form should be the occurring one.

3rd.—As to the irregularity in the periods of its appearance (at least, in unusual numbers) in this country, several of the *Vanessidæ* are notorious for their irregularity. *Pyrameis cardui* is a notable instance, and *Vanessa polychloros* is also, I believe, subject to it. This latter insect (*V. polychloros*) has been taken during the past autumn in Aberdeenshire, in a locality where *V. Antiopa* has also appeared.

Is it, too, then a fellow-voyager with the alleged "Viking" *Antiope*? Is it not possible that, if we had records extending over a greater period of time, it would be found that the appearances (in numbers) of these irregular insects were in cycles of years?

4th.—The fine condition of many of the specimens can only show that they have not "suffered a sea-change."

5th.—That larvæ have not been found does not go far to support either side of the question; for, though the larvæ of many of our common butterflies are so rarely seen, yet, from its habits, I imagine the larva of *Antiope* should not be difficult to find.

Eastferry, by Dunkeld: October, 1872.

THE RECENT INVASION BY *VANESSA ANTIOPA*.

BY D. SHARP, M.B.

I cannot see any way of accounting for the simultaneous appearance of numbers of *Vanessa Antiope* over the country except by immigration; but, if this be the case, the insect must possess great power of rapidly distributing itself.

I once observed a number of the larvæ of this species (in the Asturias) feeding on a willow *bush*, and not near the top.

I much wish all the evidence as to condition of specimens, &c., could be collected and collated, as the questions involved appear to me of considerable importance.

If a large portion of the specimens be in good condition, immigration would seem doubtful; while, if the immigration theory be true, some light should be thrown on the question of the locality of their origin, by a knowledge of the facts as to condition of specimens. The district where most specimens were found (especially if in good condition), would appear to indicate the point where they landed, at any rate.

Thornhill, Dumfries:

September 30th, 1872.

DESCRIPTION OF A NEW SPECIES OF *DAMASTER* FROM JAPAN.

BY E. C. RYE.

DAMASTER LEWISII, *sp. n.*

D. blaptoidi proxime affinis; staturâ minore, pedibus comparatim brevioribus, thoracis lineâ lævi medianâ longitudinali nullâ vel obsoletâ, elytrorum apicibus multo minus productis, discedens.

Long. corp. (summis mandibulorum elytrorumque apicibus inclusis)

42—48 millim.

Habitat "Hiogo," in insulâ "Nipon," et "Simabara," in insulâ "Kushiu" *Japanorum*.

In the present state of our knowledge of the members of the genus *Damaster*, I believe myself justified in considering as a distinct species the insect of which the diagnosis appears above, and which was detected and brought to this country by my friend, Mr. George Lewis, from two widely separated (by some 400 miles) Japanese localities, one at Hiogo, on the coast of Nipon, the largest island of the group, and the other on Simabara, a volcanic mountain on the coast of the smaller island Kushiu,—both of which are sandy districts. I have myself seen upwards of forty examples of this insect, which, from its smaller size, and shorter legs and elytral mucro, seems well separable from *D. blaptoides*, to which, however, it is most certainly closely allied, and which appears only to be found in deep peaty woods on old granitic formations, and to be excessively restricted as to locality, occurring on the hills at the back of Nagasaki.

In addition to the above-mentioned characters of smaller size (varying from nearly $1\frac{1}{2}$ inches to nearly 2 inches, whereas *blaptoides* is always considerably over the latter measurement), comparatively shorter legs, much shorter mucronated apex of the elytra (in which respect it seems intermediate between *blaptoides* and *Fortunei*, which is only known to occur at Yokohama), and obsolete or absent thoracic smooth median line, I observe that, comparing these insects in the bulk with *blaptoides*, they are apparently rather more convex, and have an apparently shorter thorax, which is rather more contracted in the lower third before the posterior angles. But I can find no other differences; any fancied discrepancy in colour or punctuation disappearing on the comparison of a number of specimens. As regards the mucronated apex of the elytra, individual peculiarities, and even unsymmetrical developments in the same specimen, occur in all the species; but, allowing every possible latitude in this respect, the difference remains very marked between *blaptoides* and *Lewisii*.

I do not know whether it has been observed before, but it seems to me beyond doubt that the elytral mucro is longer in the male sex of all the species.

D. Fortunei differs widely from the insect now under consideration in its merely rudimentary elytral mucro, much shorter, wider, and laterally sinuous thorax, which is usually somewhat brightly metallic, more oval elytra, shorter and stouter limbs, &c.; and the small size, brightly metallic thorax, and rough punctuation of the elytra of *D. rugipennis*, Mots. (*auricollis*, C. O. Waterhouse), which occurs at Hakodaté in the North-eastern island Yesso, render any comparison with that species unnecessary.

I have much pleasure in dedicating this insect to Mr. Lewis (who practically also discovered *D. rugipennis*, as he described it to me in a letter from Japan before the publication of the late Colonel Motschoulsky's description); for, supposing that future explorers may detect satisfactory links between it and *blaptoides*, it will still apparently deserve recognition as a well marked race. It may, however, be observed, that during a period of nearly eight years Mr. Lewis and his native collectors have especially sought for *Damaster* in any form in very many localities.

From Mr. Lewis's account, these insects are known by the native name "Biwa-Mushi," or "banjo-beetle," derived from their fiddle-shape; and the majority of his specimens were caught by native wood-cutters on the floors of their open dwellings on the hill-sides at night, or immediately after early dawn.

10, Lower Park Field, Putney, S.W. :
14th October, 1872.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 2).

BY F. BATES.

EPIPHYSA OVATA, *sp. n.*

Entirely black, more or less shining, and with only a trace of the villose hairs that clothe the head, between the eyes, in *E. flavicollis*; labrum not ciliate with long hairs; middle lobe of epistoma squarely truncated in front; sides of prothorax much less thickened than in *E. flavicollis*, and without the coarse, longitudinal rugosities exhibited by that species; anteriorly on each side, and within the margin, are a few large well-defined punctures, the margin itself being studded with small tubercles; the elytra are much narrower behind the shoulders than in *E. flavicollis*, which gives to the body a more regularly oval form; the discs are distinctly but irregularly punctured, and sprinkled with small, scattered granules, which become larger and more numerous near the margin and apex; the epipleuræ, or inflexed portions of the elytra, are studded with large, well-defined, oblique tubercles, which become smaller and more dispersed near the inner edge, or epipleural fold (in *E. flavicollis* the tubercles on the epipleuræ are smaller, flatter, more confused, and thickly interspersed with granules): the punctuation, &c., on the under surface, is much lighter, the legs less asperate, slightly longer and more slender than in *E. flavicollis*; the prosternum is not channelled throughout its length, but the apical two-thirds are depressed and longitudinally corrugated (in *E. flavicollis* the prosternum is strongly grooved, or channelled, throughout its length, and this groove gradually opens out as it approaches the front).

Long. 9—9½ lines.

Hab.: Benguela; two examples.

My comparisons of these two species are based upon six examples of *flavicollis* and two of *ovata*; in four of the examples of the former

(which I assume to be the typical form) the whole surface is densely opaque, the prosternal groove, and the "pad" (or "bourrelet" of Lacordaire) formed on each side by the widening out of this groove anteriorly, is quite smooth and impunctate; the meso- and metasterna and the two first segments of the abdomen are *moderately* rugose and punctured: in my fifth example, which I shall consider var. *b* (? a sex of the type), the surface is not so opaque, the whole of the prosternum between the coxæ (both groove and pad) is very strongly corrugated, and, on the pads, punctured; the mesosternum is strongly and somewhat obliquely corrugated, the intervals between the corrugations being coarsely punctured; the metasternum is strongly reticulate-punctate; the first segment of the abdomen (and the second also, but in a less degree), on the middle, is coarsely punctured and longitudinally rugose: in my sixth example, which I shall consider var. *c*, the whole surface is still less opaque than in var. *b*, the markings on the under-side are similar in character, but less strong in degree; the head above is *glabrous*, and the middle lobe of the epistoma is sub-truncated, and without the three blunt teeth at the fore-margin: this var. would seem to form a link connecting the two species, but there are, I think, too many and important differences to permit of their being considered as one species.

EPIPHYSA CILIATA, *sp. n.*

In this species the form is more elongate and still more regularly oval, and less convex, than in the preceding; the elytra are slightly opaque by their entire "ground" surface being very minutely granulated; the head is more strongly villose above than in *E. flavicollis*, the hairs extending further down on each side, entirely filling up the grooves that mark off the lateral lobes of the epistoma; the middle lobe of the epistoma is squarely truncated in front; the labrum is ciliate with long hairs anteriorly; the margins of the prothorax are rather coarsely punctured; there are also a few other punctures on each side, within the margin, both in front and at the base, and from each of these punctures (as well as from those on the margin) arises a long, pale-golden hair, those on the margin being sub-erect; the discs of the elytra (besides the "bottom" or "ground" character already mentioned) are vaguely punctate, and are sprinkled with minute granules; the sides, apex and epipleuræ are tuberculate as in the preceding species, but from each tubercle on the epipleuræ arises a long, sub-erect, pale-golden hair, so that the elytra, when viewed from above, appear ciliated; the prosternum is not channelled throughout its length, but the longitudinal depression is deeper and more marked than in the preceding species.

Long. $11\frac{1}{2}$ lines.

Hab.: Angola; a single example.

ARYENIS HAAGI, *sp. n.*

Differs from *A. rufescens* in being smaller; the colour, especially of the head and prothorax (which approaches castaneous) much deeper; the antennæ and legs,

relatively, more robust; the antennæ, especially, being stouter, the joints more cylindrical, squarely truncated at the apex and tipped with black; the last joint is scarcely as long as the preceding and tapers to a fine point; the eyes are smaller, narrower, a little less approximate beneath and, relatively, more coarsely faceted; the punctuation of the head, prothorax and under-side is much stronger, coarser and closer; the hind tibiæ are straight.

Long. $3\frac{1}{2}$ lines.

Hab. : Peru; a single example.

In the strong and close punctuation of the head and prothorax this species assimilates itself to *Chorasmius procerus*; but, whilst in *Chorasmius* the antennæ are as in *Aryenis rufescens*—with the majority of the joints elongate-obconic and sub-nodose at the apex—in the present species these organs more closely approach the form seen in *Evaniosomus*, having the joints relatively stouter, shorter, sub-cylindrical, and truncated at the apex.

The large, sub-prominent eyes, approximate beneath, the sub-cylindrical prothorax, and the presence of wings, clearly associate the present species with *A. rufescens*.

CHORASMIUS, *miki*.

To the characters already pointed out by me (Trans. Ent. Soc., 1868, p. 310, note) as separating this genus from *Evaniosomus*, it is necessary to add, that the elytra are entirely margined at the base.

Leicester: October, 1872.

Note on the occurrence in England of Anisotoma brunnea (Sturm), Er., a distinct species from A. obesa, Schmidt.—Among an enormous number (nearly 300!) of examples of various species of *Anisotoma* recently taken by my valued correspondent, Mr. R. Lawson, out of flood refuse near Scarborough, and kindly sent to me for examination, I find a few individuals, of both sexes, which are evidently to be referred to a very distinct species, and one certainly not as yet recorded as British. This I cannot think to be any other than Erichson's exposition (Ins. Deutschl. iii, p. 72) of *A. brunnea*, Sturm, attributed by Dr. Kraatz (in Stettin. ent. Zeit. xiii, p. 379) to *obesa*, Schmidt, as a small form; an opinion in which he has hitherto been followed by all writers. I feel sure, however, from the characters mentioned by Erichson for *A. brunnea*, and from these specimens of Mr. Lawson's agreeing so exactly in every respect therewith, that Dr. Kraatz must have been misled by some confusion in Erichson's real or supposed exponents of *A. brunnea*. Dr. Kraatz's opinion is apparently founded on the fact that the words of Erichson's descriptions of the two insects are in some instances applicable to both. But, on Dr. Kraatz's own shewing, the two are quite distinct, for he emphatically points out the strong and somewhat distant punctuation of the striæ as a character for *obesa*; whereas Erichson states that in *brunnea* it is "meist ziemlich dicht und fein." Besides this important discrepancy, Erichson's *obesa* is $1\frac{1}{2}$ lin. long, in the section with strongly dilated anterior tibiæ, convex, with an ample thorax and the 3rd joint of its antennæ

double as long as the second, and (in the ♂) with the anterior tarsi slightly dilated, the posterior femora with an obsolete denticle beneath at the lower apex, and the posterior tibiæ *bi*-arcuate (as in *dubia*, ♂); whereas his *brunnea* is from $\frac{3}{4}$ to 1 lin. long, in the section with linear anterior tibiæ, only slightly convex, with thorax rather narrower than its elytra, 3rd joint of antennæ only somewhat longer than the 2nd, and (in the ♂) with the anterior tarsi not at all dilated, the femora not even obsoletely toothed beneath, but terminating in an obtuse angle, and the tibiæ *singly* curved. These important differences are not mentioned by Dr. Kraatz. *A. obesa*, in fact, *very* strongly resembles large-sized *dubia*, but is of shorter and broader, with a narrower club to its entirely ferruginous antennæ, more acute posterior angles to its less strongly punctured thorax, and coarser and more remote punctures (especially towards the base) in the striæ of its elytra. I am indebted to Dr. Power for the sole British exponent I possess of this species.

A. brunnea, according to Erichson and Mr. Lawson's specimens above mentioned, averages rather less in size than *calcarata*: it is *entirely* ferruginous, shining, with a narrow club to its concolorous antennæ, of which the apical joint is not narrower than the preceding; its thorax is not sinuate at the base on each side, and has its posterior angles almost as acute as in *litura* (*ornata*, Fairm.); the striæ of its elytra are (for an *Anisotoma*) fine, with the punctures small and closely packed (I observe, moreover, that the striæ are rather irregular, the 3rd one especially being slightly waved outwards about the middle). The hind legs of the fully developed ♂ are much after the scheme of the same sex of *A. litura*, but the tibiæ are not so elongate or so much curved inwards at the apex, and are broader throughout (the narrower and entirely ferruginous club, with comparatively wider apical joint, at once separate this species from *A. litura*).—E. C. RYE, 10, Lower Park Field, Putney, S.W.: October, 1872.

Note on Anisotoma lunicollis, Rye.—The opportunity of examining a few more specimens of this most distinct species enables me to add to my original description the fact that its elytra are set with very short and scattered ciliæ just above the outer margins, somewhat after the fashion of *A. furva* and *ciliaris*, though in a much less marked degree. The outer edge of the anterior tibiæ, also, is not so straight as usual, being somewhat irregular between the roots of the spinose setæ.—ID.

Note on "carding" beetles.—As I do not think it probable that the opportunely introduced strictures of my esteemed colleague, Mr. McLachlan (note, p. 103 of the present vol.), are founded upon any personal acquaintance with the system of mounting *Coleoptera* on card, I can only presume that they are based upon inferences erroneously deduced from its apparent inapplicability to specimens of the Order upon which he is now writing. But I can safely assert, in reply to his sweeping condemnation of a practice employed by all British Coleopterists, that I have never had the least difficulty in readily floating off and examining the under-sides of beetles so mounted. If my colleague *has* tried the system, he must, I think, have used some unfit medium for mounting; at all events, the "gum beclugged tarsi," to which he so pathetically alludes, have never come in my way, as I have always found a moderate amount of tragacanth capable of almost instantaneous removal. If it were worth while to defend the system of carding against mere random objections, it could be urged that this little trouble of floating off specimens to examine their

lower sides is the sole semblance of a valid objection to it; and that this objection seems much more than counterbalanced by the infinitely better and safer condition and capability of manipulation and transmission of carded specimens, the natural facies of which (especially of *Malacodermata*, *Brachelytra*, &c.) can only be so preserved, by their freedom from the initial distortion and damage and subsequent (often speedy) destruction by verdigris consequent on pinning, and by the much better view that is thereby obtainable of the proportions and structure of limbs (for it is quite a mistake to suppose that minute characters escape observation in carded beetles: Mr. Wollaston, the introducer and constant employer of the system, cannot well be accused of omitting to notice anything). As regards mere facies, I hope my colleague will pardon a rash opinion, not founded on practical acquaintance, that, in a series of each species, a single carded specimen of one of the smaller objects of his study, mounted by a competent hand, seems to me more likely to preserve the semblance of nature than the usual shrivelled and distorted pinned examples which may more readily exhibit (when you can get to see them) minute structural details.

In this country, with its comparatively small amount of insect life, there seems little doubt that carding is the best method for preserving beetles: in more prolific regions, it might not be worth while to pursue it, on account of the slight extra waste of time entailed by it. But, so far from the practice being on the wane, as my colleague thinks, it is apparently on the increase. In the last two parts of 'L'Abcille,' M. de Marseul publishes copious directions by MM. Meyer-Dür and Leprieur for mounting insects on card, accompanied by an able exposition of the benefits thereby accruing; though, curiously enough, *tragacanth* does not appear to be known to either of those gentlemen, nor do they seem to be aware of the long space of time during which the system has been in use elsewhere.

I do not know where my colleague often sees carded *Carabi*. English Coleopterists generally draw the line at *Harpalus* or thereabouts.—ID.

Vanessa Antiopa in *Dumfries-shire*.—On Saturday afternoon, 31st August, when turning the corner at the entry of the grounds here, a large butterfly flew up from the grass, almost from under my feet, causing me to start back, and the next moment I recognised it as *Antiopa*. It flew up and away very swiftly and strongly (indeed, a strong wind was blowing at the time), yet I had time not only to see that it was the Camberwell Beauty, but that it was worn and in bad condition.—D. SHARP, Thornhill, Dumfries: *September 30th*, 1872.

Vanessa Antiopa near *Colchester*.—About a dozen specimens of *V. Antiopa* have been captured hereabouts, and several others have been seen. I captured two under pear trees, and four others were captured under other pear trees close by the same spot. Two were taken on a fig tree attracted by the ripe fruit. Three or four have been captured by boys and working men, who have maltreated them grievously. One was brought me with a thorn thrust through the thorax; another in a basket with a log of wood upon it to keep it quiet; and two were discovered nailed up on a shoemaker's door by a man who works for me. Sleepy pears seem to possess especial charms for them.—W. H. HARWOOD, St. Peter's, Colchester: *September 19th*, 1872.

Occurrence of Vanessa Antiopa again near Eltham.—My entomological friend, who captured the *Vanessa Antiopa* recorded in last month's Magazine, secured

another specimen on the 29th ultimo : this time in his dining room, into which it flew through the open window about mid-day, resting on the table, and allowing a tumbler to be placed over it. From its feeble flight, and from the sluggish state it is now in (for it is still alive), it was no doubt seeking a place wherein to hibernate.

With the exception of being slightly damaged at the edges of the hind-wings, the specimen is in excellent condition, and hardly gives one the idea of having migrated. The band is of a pale cream colour, and the ground colour a richer chocolate, and the blue spots brighter, than in the other example.—A. H. JONES, Shrublands, Eltham : 2nd October, 1872.

Vanessa Antiopa at Southsea.—A very good specimen of *Vanessa Antiopa* was captured at Southsea by my nephew, on September 3rd.—L. M. S. PASLEY, Moorhill, Fareham, Hants : September 21st, 1872.

Vanessa Antiopa.—There have been in all, three specimens of *Antiopa* taken here ; one at Saltburn, three near Richmond, and one near Barnardcastle. Two or three were also seen since the last captures. The first seen (by a collector) flew as if the wings were soft, flappy and slowly, and was evidently quite fresh. It just managed to escape by popping over a hedge. One seen three weeks after was also quite fresh and perfect. I fancy many of those which are rubbed have become so through handling, as the two I took had both been caught in the hand, by a lady, a few days before, and let off again. This was in the same garden I took them in, and which they had frequented every day till I caught them.—JOHN SANG, Darlington : 14th October, 1872.

Vanessa Antiopa at Guestling, near Hastings ; and at Suffolk.—A specimen of this insect was taken here in the beginning of this month : I do not know the exact date. I send also an extract from the ' Ipswich Journal ' of, I believe, August 31st : " A fine specimen of the Camberwell Beauty (*Vanessa Antiopa*) was caught in the Rectory garden, Little Glemham, by Master R. H. King, on Friday last [probably " August 23rd]. This is the second within the last two seasons that has been caught here. On the following day, another specimen was taken by Master W. Long, at " Tuddenham Vicarage, and another perfect specimen was taken on the 25th inst., " by Mr. W. Dounes, of Bungay."

I have since heard that they have caught two or three at Little Glemham.—E. N. BLOOMFIELD, Guestling Rectory : September 21st, 1872.

Vanessa Antiopa.—I cannot agree in the opinion suggested by my kind friend, Mr. Stainton, that the specimens of *Vanessa Antiopa* which appeared in this country in August and September were of continental origin. I believe every one of them was bred in this country.

Moses Harris gives figures of this species in his ' Aurelian,' and does not say that it was uncommon when he wrote, a century ago. He states that " the caterpillar feeds on willow, and is always found on the highest branches ; its manner " of feeding, time of change, and all other parts of its history are exactly similar to " those of the peacock, so that I think it will be quite unnecessary to say anything " further. The fly appears at exactly the same time as the peacock."

There does not appear to me to be anything more remarkable in the appearance and disappearance of *Vanessa Antiopa*, than of many other species. *Vanessa polychloros* was formerly one of our commonest butterflies here; it then suddenly disappeared, and for ten years I did not see a single specimen, but last year it again appeared in tolerable plenty. Many of the *Noctuæ* disappear and re-appear in the same way, without any apparent cause.

There is a peculiarity in the appearance of British specimens of *V. Antiopa* which at once distinguishes them from the continental ones, independently of the difference in the colour of the border of the wings.—HENRY DOUBLEDAY, Epping: October 12th, 1872.

Eulepia cribrum at Wimbledon Common.—On the 26th of July, I went to Wimbledon Common in the hopes of catching *Vanessa polychloros*, which I had seen there two days previously. On my way to the spot, I found a colony of *Zygæna trifolii*, a species I have never seen in this district before. Arrived at the ground, I soon took a *V. polychloros*, and while vainly searching for more, took several *Endotricha flammealis* in very fine condition. Thus engaged, I stumbled across a fair specimen of *Eulepia cribrum*, to my great surprise. I shall be glad to learn if this insect has been taken in this locality before. A second expedition with my friend, Mr. J. B. Blackburn, was a failure. On my way home, I found in a spider's web a wing of *Leucania conigera*, which species I believe to be new to this locality; and in the middle of August, *A. puta*, also new to Wandsworth, occurred on lamps.—G. B. LONGSTAFF, Southfield, Wandsworth, S.W.: 4th October, 1872.

Sterrrha sacraria at Manchester.—On the evening of September 5th last, I was at the Freemasons' Hall, in Manchester, attending one of the Masonic Lodges held there. After "Labour," we adjourned to "Refreshment," and, on entering the Banqueting Room, I saw a whitish-looking moth flying round a gas pendant; just as I took my seat it fell upon the table, on to the side of a plate opposite to me: to my astonishment, it was *Sterrrha sacraria*, a fine one. A more unlikely place for it I could scarcely imagine. I attempted to box it, but before I could do so, it flew up to the gas, and came down wingless.—JOHN T. CARRINGTON (late of York), Manchester: October, 1872.

Zelleria saxifraga.—This species is no longer unique as British. I saw several specimens, and captured one or two, when botanising in Glen Lyon, Perthshire, last August. The specimens were flying in the afternoon among *Cystopteris montana* and (what is more to the point) *Saxifraga hypnoides*, *aizoides*, &c., on some rocks at an elevation of about 2500 feet. This is about 1100 feet higher than the locality in Braemar for this species.—F. BUCHANAN WHITE, Dunkeld: October, 1872.

A short account of a four days' trip to Sherwood Forest.—On Tuesday, August 20th, Mr. Porritt, of Huddersfield, Mr. Mosely, of Almondbury Bank, Huddersfield, and the writer of this, started for Worksop, en route for Sherwood Forest, for the purpose of collecting larvæ and moths. We arrived at the quiet village of Edwinstowe, where we settled our head quarters at the "Royal Oak." Our whole time during the day was spent in searching for larvæ, pupæ, &c., and at night in sugaring, —and a most successful time of it we had. We met a son of Mr. Birchall, of Leeds

engaged in the same work, who joined our party. The beating for larvæ was not a great success, as we only took a few good things :—five larvæ of *N. dodonæa*, two of *N. dromedarius*, two of *A. leporina*. Amongst the others were plenty of *E. punctaria*, *A. betularia*, *C. prasinana*, &c. The pupæ of *A. aprilina* seemed very scarce, as we only got half-a-dozen between us. The sugaring at night was a great success, although the variety of captures was not large. The following is a list of the captures :—*C. diluta*, *X. polyodon*, *C. Cytheria*, *L. cæspitis* (flying over the heath), *T. janthina*, *fimbria*, *orbona* and *pronuba*, *N. glareosa*, *Dahlîi*, *bella*, *neglecta* (I got a fine specimen of the grey variety), *xanthographa* (in hundreds), *O. suspecta*, *E. fulvago* (of this pretty moth, we took about 500 specimens between us), *C. trapezina*, *A. occulta* (one specimen of this fell to my lot), *G. libatrix*; and each of us was so fortunate as to procure specimens of the scarce *S. anomala*. We took several specimens of the beautiful *Crambus pinetellus*, one worn *T. quercûs*, and one *A. Adippe*. At ragwort, we found many *C. graminis* throughout the day. The numbers of *E. fulvago* taken this year must have been very large, as there were other collectors there who were equally successful.

Such is a short account and list of captures during about four pleasant days; and we all returned to our several destinations well pleased with our success.—
G. C. B. MADDEN, Almondbury, Huddersfield : August 26th, 1872.

Captures of Lepidoptera in Sherwood Forest.—I captured a splendid albino variety of *Polyommatus phleas* in this locality on the 18th of August last. The usual copper colour is replaced on all the wings by a beautiful creamy-white. The specimen is a female, and in good condition.

Noctuæ came to sugar in extraordinary numbers; oak-feeding species being the most abundant. *Euperia fulvago* was unusually common, as many as 157 having been taken in one night. This moth occurred in almost every conceivable situation,—at sugar, flying in the sunshine, on tree trunks, on flowers, and by beating from oaks. *Noctua glareosa*, *neglecta* and *Dahlîi*, *Stilbia anomala*, and *Crambus inquinatellus* and *pinetellus* were well represented; and other entomologists during the same week captured *Luperina cespitis*, *Neuria saponariæ*, and *Aplecta occulta*. A specimen of *Vanessa Antiopa* was seen but not captured, and others were heard of from residents at Edwinstowe.

As the conditions under which sugar proves attractive to *Noctuæ* are still somewhat uncertain, I think it may be of interest to mention that on the 17th August (the day I started for Sherwood), the wind changed from W. to E., and remained E. and N.E. during the week of my visit. There was also a sudden rise in temperature coincident with the change of wind. On August 16th, the highest marked by the thermometer was 63. On August 17th it rose to 85, and remained high during the week, the highest daily reading never sinking below 75. No rain fell to the 22nd, and on that day the numbers of *Noctuæ* diminished; the 23rd was a 'real bad' night. I may also mention that during the whole time we were favoured with a clear sky, and the full light of a harvest moon.

Larvæ were scarce, though a considerable number of *Notodonta dodonea* were taken.

A full-fed larva of *Cossus ligniperda* was brought to me at the Inn by a labourer. He had found it walking across a path, and had put it carefully into a tobacco box. He informed me that he had "got a fearful brute," and proceeded to open the box

at arms length on the floor, the landlady standing by with her apron in her mouth. As soon as I saw it, I took it up: "Lord," says he, "I darnt ha' done that for a week's wage. I niver seed such an a beast afore i' all my puff."—HOWARD BIRCHALL, Kirkstall Grove: *October 6th, 1872.*

Captures at Witherslack: Argyrolepia luridana and other species—On the 18th of July, I went 40 miles north from Manchester, in hopes of again meeting with *A. luridana*. Although the day had been fine, the rain came down in torrents before I reached Grange, and from there I had four miles to walk, so that it was nearly dark by the time I reached the locality for *A. luridana*. I only boxed one *Pterophorus Bertrami* and a few *Argyrolepia badiana*; nothing else was stirring, except *Crambus culmellus* and a few common *Geometridæ*.

The next morning, on the bank opposite the Inn, I found a specimen of *Catoptria Westwoodiana (expallidana)*, but could not find a second. An odd specimen of *Crambus falsellus*, *Lithosia complanula*, and worn specimens of *Eupithecia distinctata*, were all I could beat out of the dripping wet yews and hollies. So I resolved to go over Whitbarrow: on the moss I had to pass, I saw *Hyria auroraria*, *Cnephasia lepidana*, and larvæ of *Hadena glauca*; on Whitbarrow itself, I saw nothing worth boxing, only *Elachista Gleichenella* and *Argyresthia dilectella*, and an odd specimen of *E. triseriatella*. As I returned, I took a fine *Argynnis Aglaia* settled on some wild thyme: it is the *Charlotta* variety.

In the evening I was joined by a young friend, Mr. H. Threlfall, and we took one *Coleophora fuscociliella*, 72 *Hyphenodes humidalis*, together with sundry *Ebulea crocealis*, *sericealis*, *Dicrorampha consortana*, *Catoptria Scopolianna*, *Pterophorus Bertrami*, *osteodactylus*, *plagiodactylus*, *bipunctidactylus*, *Parasia Metzneriella*, *Coleophora limosipennella*, *pyrrhulipennella*, *viminetella*, &c.

The next morning we went on to the moss to look for *Elachista serricornis*, but could not find a single one, nor even *E. rhynchospora*; the only thing worth pinning was *Coleophora juncicolella*. In a dark shady place, we took a fine *Cnephasia Penziana*. We then turned to larva hunting, and I got what I expect will prove to be larvæ of *Dep. pallorella*, and found a fine larva of *Calocampa exoleta* feeding on the hawkweed. Then we collected a number of *Nemotois minimellus*, *Gelechia senectella*, *Gracilaria auroguttella*, &c. It was now nearly nine o'clock, and I was quite giving up all hopes of *A. luridana*, when a moth flew past me and settled on a twig in the hedge, and I saw it was *A. luridana*, and made a dash at it, and secured it: a rather worn male specimen (the first week in July is the proper time for this insect); this is the seventh specimen I have taken.

On our way home on the following morning, we met with a fine *Pterophorus Bertrami* by the road side, and boxed a score of *Euchromia rufana*.—J. B. HODGKINSON, 15, Spring Bank, Preston: *August 12th, 1872.*

Morayshire Noctua in 1872.—When, in December last, I made up my yearly return of captures in Morayshire, I imagined we had experienced as bad a season as possible. The result of the past season, however, has been infinitely worse. Indeed, from the almost constant rain and low temperature, most of the *Noctuae* usually common here have been either very scarce, or entirely wanting.

For comparison with other localities, more than to record rarities, I venture to give the result of my doings here.

February 20th—Found many larvæ of *S. anomala*; they are best found by the aid of a lantern, for they feed quite exposed at night on grass: the moth afterwards in the autumn, sparingly. I also bred *Anarta myrtilli*. March 14th—On the

willow and sallow catkins, *T. satellitia*, *C. exoleta*, *C. vaccinii*, *T. gothica*, *stabilis* and *instabilis*, and *T. piniperda*; contrary to my usual experience, the female catkins seemed the most attractive. 15th—*C. flavicornis* at rest on a white wall, afterwards common in similar places. 18th—*T. rubricosa*, rare, at palms. April 9th—After heavy snow and frost, took my first pair of *T. gothicina* on sallow blooms on high heather-clad land. This is the same locality that has in previous years yielded me *gothicina*, which I never saw in the low country, where *gothica* swarms: this fact seems worth recording. 10th—Saw fine *E. versicolor* and many *B. parthenias* in the Altyre Woods. 17th—Bred the first of a fine series of *H. rectilinea* from Aberdeenshire larvæ. 25th—Bred *A. ligustri*; the moth afterwards was more plentiful at sugar than I ever knew it before. Swept 27 larvæ of *A. agathina*, and afterwards hundreds more: I can, however, never succeed in getting this species into pupæ. The moth in August was very scarce. May 4th—Swept 45 larvæ of *A. agathina*, and one *N. neglecta*. 7th—Larvæ of *E. nigra* very abundant on plantain. 12th—Bred *C. umbratica*; the moth later on occurred over flowers and at rest. 24th—Dug out of tufts of *Salix repens* in the Culbin Sands, 156 larvæ of *A. præcox*, and one *A. valligera*. 27th—First *G. libatrix* at sugar, afterwards common. 28th—*C. cubicularis* at rest: very early? 29th—*X. rurea* and *H. thalassina*, both common at sugar. 30th—Swept a larva from heather which could be no other than *P. interrogationis*. June 4th—*H. adusta*, common at sugar. 6th—*T. batis* and *A. rumicis*, both common at sugar. 7th—*D. coryli* at rest; bred *C. Cytherea*. 9th—*D. capsicola* over *Lychnis*. 11th—*H. dentina* at sugar. 13th—*P. gamma* over flowers; many larvæ on nettles in August: *N. plecta* at sugar. 14th—*M. anceps* and *R. tenebrosa* at sugar. 18th—*M. brassicæ* at rest; *M. fasciuncula* very abundant at sugar. 19th—*N. rubi* abundant; *E. lucipara* and *N. brunnea*, both common at sugar (the former much more so than usual); *A. basilinea* and *A. suffusa* also at sugar. 22nd—Larvæ of *A. tritici* swarming in the garden. I had hundreds turned to pupæ, which, however, yielded me only one moth, the others being all infested with *Ichneumon sarcitorius*. I only took one specimen of *tritici* afterwards at rest, instead of hundreds as in former years. First *X. polyodon* at sugar; very abundant later on; both the dark and ordinary forms. 24th—Many *H. oleracea* at sugar, with *M. strigilis*, *H. adusta*, and *N. conflua*; the latter unusually abundant. 26th—*N. augur* at sugar; also *A. nebulosa*, which has occurred here far more abundantly this year than before. 27th—*L. lithargyria* at sugar, with *A. gemina*, *A. segetum*, *N. c-nigrum*, and *T. pronuba*. 29th—*A. exclamationis* and *N. festiva* at sugar. 30th—*A. porphyrea* with net. July 1st—*A. ligustri* at sugar; very common. 3rd—*A. corticea* at sugar; *H. contigua*, rare, at Cossus-birch. 4th—*Cossus ligniperda* at rest. Took with net three *H. marginata* over *Ononis*; they were plentiful, but past their prime. 6th—*T. subsequa* at sugar; a month earlier than usual. I only took five or six afterwards, one specimen shewing a remarkable tendency to melanism. *C. blanda*, rare, at sugar. 9th—*N. triangulum* was uncommon at sugar; *L. conigera*. 10th—*M. typica* at sugar. 11th—*A. oculea* at sugar. 12th—First dark *orbona* at rest; afterwards many at sugar, but not so abundant as last year, although I got some varieties I never saw before. 13th—*N. baja*, common at sugar. 18th—*L. impura* at sugar, rare. 21st—*P. v-aureum* over *Lychnis*, much less common than usual. 22nd—*T. fimbria* at sugar; also *M. literosa*. 25th—*A. valligera* on Cossus-birch and at sugar; *N. xanthographa*, rare, at sugar. 28th—*A. nigricans* bred; larvæ of *D. cucubali* from *Silene*. 29th—First *L. pallens* at sugar. August 1st—took *P. bractea* over knap-weed, but lost it again. 6th—*N. depuncta* at sugar. 8th—*X. cerago* at sugar. 10th—*N. Dahlii*, first at sugar, afterwards plentiful. 13th—*E. fulvago*, only one at sugar.

14th—*S. anomala*, rare, at rest and at sugar. 15th—*A. tragopogonis* at rest. 23rd—*E. nigra* not uncommon; *H. micacea* at sugar. 29th—*H. protea* at rest and at sugar. September 4th—First *A. litura* and *C. trapezina*, both very scarce this year. 7th—*H. urticae*, larvæ abundant on nettles. 9th—First *A. agathina* and *N. neglecta*, both very scarce. 12th—*P. chi* at rest. This moth usually swarms here; this year I only observed one specimen. *C. velusta* at sugar. 13th—*C. exoleta* rare. 23rd—First *A. aprilina* and *P. meticulosa*.—GEO. NORMAN, Cluny Hill, Forres, N.B.: October, 1872.

Description of the larva, &c., of Ephestia artemisiella.—My friend, Mr. D'Orville, has for some years cultivated various plants in his garden with the sole object of attracting *Lepidoptera*, either in the imago or in the larva state, and with some considerable success. Amongst other species, *E. artemisiella* has been a more or less constant visitor, inducing at last the belief that it was bred in the garden, and lately, Mr. D'Orville has been able to prove this to be the fact, and now desires me to put together some account of his investigations.

The egg-state has not been observed,—but probably, the eggs are laid low down near the ground, on the tough woody stalks near the roots of *Artemisia absinthium*, as it is here generally, in old plants, that the larvæ are found to have made their entrance, and excavated mines or chambers for themselves, while feeding on the central substance of the root-stalks, much after the manner of some of the *Sesiidae*.

In such situations, one might naturally suppose these larvæ would be more than usually free from molestation, but experience proves this not to be the case, as it happens that very few larvæ are so lucky as to escape an attack by a small prying ichneumon, their inveterate foe, *Lissonota hortorum*, Grav., specimens of which have been kindly identified by the Rev. T. A. Marshall.

On the 7th of December, 1871, many of the larvæ were found to be quite small, others more than half-grown, while some of the ichneumons had already formed their cocoons in the mines of their victims; indeed, towards the end of the month, one female ichneumon was bred, and during the months of March and the first week of April, 1872, Mr. D'Orville bred as many as seventeen of both sexes, and, had these been at large, no doubt they would have sought out a number of the remaining larvæ of *artemisiella* in which to deposit their eggs, thus causing their destruction both in autumn and in spring. In fact, both *artemisiella* and its parasite become full-fed in the larva state over a period of some latitude; but, while the ichneumon has also the same range for the appearance of the imago, *artemisiella* is, in that respect, more restricted, all the moths we bred (some fourteen in number) appearing between June 23rd and July 18th.

That we bred any moths seemed strange, for, although the root-stalks of worm-wood were traversed in many directions by the mines of the larvæ, yet, on cutting some of them open, I found but one living larva amongst a host of ichneumon pupæ.

As the young larva of this species differs only in size from the adult, it will be sufficient to describe it when full-grown. At that time, when extended, its length is half an inch, very plump and fat-looking, cylindrical, and tapering from the third segment just a little towards the head, which is a trifle the smallest, the anal segment tapers suddenly and considerably, all the legs are short; the skin is smooth and without much gloss, excepting the head, the plate behind it, and one on the anal tip, which are very shining; the segments are tolerably well-defined at the divisions, the sub-divisions much more delicately; the sides are dimpled, and the spiracular region a little inflated.

In colour, it appears almost white, but in reality is a very pale faintly greyish flesh colour, with the slightest dorsal line of pale greyish-brown; the head is dark

brownish-red, with the mouth blackish, the plate on the second segment is brownish-red in front, and very dark brown at the back, and is dorsally divided by a line of the pale flesh colour of the body; the ocellated spot on the sides of the third and of the twelfth segments is a ring of pale greyish-brown, with the whitish ground colour in the centre; the very minute tubercular dots are pale grey-brown, and a fine pointed hair of the same colour proceeds from each of them; the plate on the anal tip is of the same greyish-brown tint as the anterior legs, the ventral legs being tipped with dark brown hooks.

The pupa is about three-eighths of an inch in length and somewhat slender, the wing cases long in proportion; it is of a light reddish-brown colour, sometimes rather dark brown, and shining; it is enclosed in a whitish silken cocoon, and attached by the tail to a little pad of silk; the cocoon is spun amongst gnawings and frass held together with a mixture of silk of a tough consistence, and quite filling the mine above and below; the head of the pupa is from a quarter to half an inch from the entrance, and the extent of the mine or chamber below the pupa is generally about five-eighths of an inch in length.

The ichneumon case or cocoon is found in a part of the excavation not far from the entrance, where it seems exactly to fit the hollow in which it reposes; it is five lines long, slender and cylindrical, and rounded at each end. Soon after its formation, it is of a pale mahogany-brown colour, highly polished and semi-transparent, so that the unchanged whitish grub within can be partially seen through; but after a few days its occupant becomes invisible, as the case either loses its transparency, or the colour of the pupa then assimilates with the case, which retains its colour to the last: the perfect ichneumon makes a circular hole on the side of the case, near the top, for its exit.—WILLIAM BUCKLER, Emsworth: September, 1872.

On the larva of Depressaria depressella.—During the last few days I have been breeding *D. depressella* from larvæ obtained the beginning of August from the umbels of wild-carrot. The umbels seldom contained less than two and never more than five larvæ, but, though they feed close together, they could scarcely be called gregarious, as each spun its own web or tubular chamber.

Though all had the raised enamelled spots, they differed much in the ground colour, and I described three distinct forms:—1st, a pale transparent green; 2nd, a yellowish red-brown (as the figure in Nat. Hist. Tin., vol. vi); 3rd, a deep green (as deep as the larva of *Homœosoma senecionis*).

These three varieties were kept apart, and spun their cocoons without appreciably altering their respective colours.

In the perfect state I see no difference in the specimens. I did not at the time notice whether the different coloured larvæ frequented the same individual plants.—SYDNEY WEBB, Redstone Manor, Red Hill: August 29th, 1872.

On the oviposition of Pterophorus pentadactylus, L., in confinement.—At eleven o'clock in the evening of the 18th July last, a "Plume," which Mr. Stainton has kindly determined as above, came to my lamp, and at last settled on the book I was reading. After being confined for a few minutes under a glass bell on the mantel-piece, it laid, at intervals of a few seconds, eleven minute, oval, white, semi-opaque ova. The next morning I found it lying dead on the eggs, which were loosely scattered about. Mr. Stainton having informed me that the larva eats leaves of *Convolvulus arvensis* in May, I conclude that the "Plume" was attracted by two pots planted with an exotic *Convolvulus*, and standing in the immediate vicinity of the window through which it made its entrance.—ALBERT MÜLLER, Norwood: August, 1872.

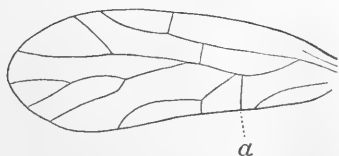
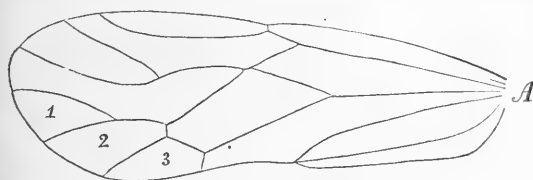
NOTES ON TWO NEW GENERA OF *PSOCIDÆ*.

BY BARON E. DE SELYS-LONGCHAMPS.

Last year, in preparing for the 'Société entomologique de Belgique' a revision of the 'Psocides' described by Rambur (a paper not yet published), I noticed two genera (or sub-genera) which were not included among the twenty-one genera characterized by Dr. Hagen in his 'Psocinorum Synopsis synonymica' in 1866. I communicated the types of these to my friend, Mr. McLachlan, not having absolute confidence in my own eyes concerning the existence, or non-existence, of the third tarsal joint in some *Psocidæ*. He agreed with my opinion, and, in an article published in the 'Entom. Monthly Magazine' for September last, he notices (Notes 3 and 4, p. 77) the two new forms which I had sent to him, but, from motives of delicacy, refrained from giving them names. However, the few words he gave suffice to establish their diagnosis. It remains then to make known the names which I assign to these new forms, and to give drawings of the neururation of the wings; for, as Mr. McLachlan has said, it is very desirable that such drawings should be published, because we know by experience how difficult it is for a student, commencing his studies of the *Psocidæ*, to follow descriptions of the peculiarities presented by neururation, without the aid of figures.

PSYLLIPSOCUS, *n. g.*

Alarum anticarum characteres fere ut in Cæcilio Elipsocoque;



sed vena furcata ramulam ("a" in fig.), cellulam marginalem superadditam, cellulæ ellipticali ad marginem interiorem basin propius conjunctam formantem, ante furcam primariam infernè emittit. Tarsi, ut in Elipsoco, triarticulati.

A. Fore-wing of *Hemipsocus*; 1, 2, 3, the marginal cells.

B. Fore-wing of *Psyllipsocus*; a, the additional branch of the vena furcata.

P. RAMBURII, Selys.

Psocus pedicularius, Ramb., Névropl., p. 323 (*excl. syn.*).

Dr. Rambur indicates this insect as found at Paris in houses. The type, now in my collection, is in bad condition, which renders it still more necessary that a drawing of the neuration should be given. Rambur was mistaken in considering this species identical with the *pedicularius* of Linné, &c. (= *binotatus*, Rambur). It is therefore necessary to give it a new name, and I cannot do better than dedicate it to that observant entomologist. It is probable that *P. Ramburii* is exotic, imported into Paris with plants or merchandize. Rambur having no doubt described the insect from living or fresh examples, it is useful to reproduce his description in order to facilitate new researches:—

“De la grandeur du *binotatus*, mais ayant les ailes beaucoup plus “grandes. Corps d’un verdâtre obscur, surtout en dessus. Bouche “très-pâle; antennes beaucoup moins longues que l’insecte avec “ses ailes, pâles, légèrement velues; yeux saillants, noirs. Pieds “pâles. Ailes grandes, tout à fait transparentes, ayant les nervures “fines.” (The description of the neuration is not here reproduced, because the terminology does not accord with that now in use. It suffices to say that Rambur was perfectly aware that the nervures are disposed differently to those of other species, and that his description of them agrees entirely with the type in his collection).

HEMIPSOCUS, n. g.

Alarum anticarum characteres ut in Psoco (sensu stricto), sed cellulae marginales tres solum (nec quatuor) adsunt. Tarsi, ut in Psoco Peripsocoque, bi-articulati.

A Peripsoco cellula discoidali oclusa, cellulisque tribus marginalibus, discedit.

H. CHLOROTICUS, Hagen,

Psocus chloroticus, Hag., Verh. zool-bot. Gesellschaft Wien, 1858, p. 474; 1859, p. 200.

Sent from Ceylon by Nietner.

Liège: October, 1872.

DESCRIPTION OF A NEW SPECIES OF *PAPILIO* FROM LAGOS.

BY W. C. HEWITSON, F.L.S.

PAPILIO KIRBYI, sp. n.

Upper-side dark brown. Both wings crossed by a central narrow equal band of white, commencing near the apex of the anterior wing,

where it is straight, by an isolated spot and ending near the middle of the inner margin of the posterior wing, where it is curved. Posterior wing with a long tail, white at the point: a sub-marginal series of indistinct white linear spots.

Under-side as above, except that there is a small carmine spot marked with black within the cell, a second spot of the same colour below this, and a lunular carmine spot bordered above with white at the end of the central band of white.

Exp. $3\frac{1}{2}$ inches.

Hab. : Lagos.

This species has been kindly presented to my collection by Mr. Semper, of Altona. It cannot be compared to any known species. Although dissenting altogether from much of the detail of his book, I have named it after Mr. Kirby, the author of a "Synonymic Catalogue of Diurnal Lepidoptera," in admiration of the great accuracy which is displayed in its production, and in gratitude for the many weary hours of research he has spared to me by the labour he has bestowed upon it.

Oatlands, Weybridge: November, 1872.

DESCRIPTIONS OF NEW SPECIES OF AFRICAN DIURNAL LEPIDOPTERA.

BY CHRISTOPHER WARD, F.L.S.

Dr. Boisduval, in his 'Faune Entomologique de Madagascar,' describes (page 30) and figures (plate 6) what he considers to be the male and female of *Acræa Ranavolana*. I have recently received specimens taken *in copulâ* of the species figured as the ♂ with a ♀ in no way differing, and of the ♀ with a ♂ only differing in being rather smaller; the latter must therefore be considered as a distinct species, which I propose to name

ACRÆA MANANDAZA, *n. s.*

♂. *Upper-side*: fore-wing transparent, suffused with carmine, darkest at the base and outer margin: hind-wing powdered with white, the outer margin bordered with carmine, with six clearly defined oval black spots, edged outwardly with red, the upper and lowest the smallest; curving from the centre of the anterior margin to the centre of hind margin, an irregular band of nine black spots; near the base a cluster of six small black spots.

Under-side: the same as upper-side, but wanting the white powdering.

♀. Colouring and markings the same as ♂.

Expanse, ♂ 2 inches, ♀ $2\frac{1}{2}$ inches.

Habitat, Madagascar.

EURYTELA NARINDA, *n. s.*

♂. *Upper-side* : rich dark brown, with a red band commencing narrowly below the apical angle of fore-wing, broadening downwards to anal angle, crossing and covering posterior half of hind-wing; the outer margin of the latter edged with dark brown, and within a narrow clear band of same colour.

Under-side : rufous-brown, with a narrow, irregular band of small, triangular, silver spots, connected by a line of darker brown, and following the outer margin of both wings; on the fore-wing, within this band, is a clear curved line of silver, continued nearly to the anal angle, the latter shaded with orange-yellow; the cell of the upper, and base and centre of lower, wing marked with numerous lunular and oval spots and striæ edged with silver.

Expanse, 2 inches. Habitat, Madagascar.

Allied to *Eurytela Dryope*.

MYCALESIS ANTAHALA, *n. s.*

Upper-side : fore-wing brown, darkest at the anterior margin, a black ocellus surrounded with lighter brown, narrowly bordered with yellow, and with a small white eye. Hind-wing brown, outer margin slightly dentated and edged with dark brown, within three small ocelli, black bordered with yellow, and white eye.

Under-side : white, mingled with numerous small waved markings of brown: fore-wing with a small ocellus near apex, below a larger one surrounded with white: hind-wing with a broad band at outer margin, edged inwardly by a narrow line of brown, and containing six ocelli, one separate and touching the apex, below a series of five, which are confluent and continued to the anal angle, the upper and two lowest the smallest, all yellow with black centre and white eye, and bordered with brown; hind margin edged with a double line of brown.

Expanse, 2 inches. Habitat, Madagascar.

DIADEMA USAMBARA, *n. s.*

Upper-side : fore-wing black, near the apex a broad oblique patch of white almost crossing the wing, below this a small white spot; from the cell to the hinder margin broadly marked with white suffused with greyish-blue, darkest towards the outer margin, the nervures crossing are strongly marked with black: hind-wing white, clouded with grey at inner margin, outer margin with a clear band of black continued round to anal angle, and there containing a double red spot, nervures black.

Under-side : as above, but apex of fore-wing broadly marked with red, and outer margin of hind-wing bordered with red, edged outwardly by a black line containing numerous small white spots.

Expanse, 4 inches. Habitat, Ribé, East Africa.

This fine *Diadema* is allied to *D. Anthedon*.

(To be continued).

EXTRAORDINARY MIGRATION OF *PYRAMEIS CARDUI*.

BY F. BUCHANAN WHITE, M.D.

My friend, Colonel Drummond Hay, of Seggieden, Perthshire, has furnished me with the following account of a great flight of *Pyrameis cardui* that he once witnessed, which I think should be recorded.

"It was, as far as I recollect, in the early part of the summer of 1842, while stationed in Vido, a small island in the harbour of Corfu, that an extraordinary flight of the Painted Lady Butterfly took place. The first part of the column reached the island about 9 o'clock in the morning, and continued steadily to advance in rolling masses of many thousands for upwards of three hours. Though the density of the column was at no time very great, yet it appeared to extend in breadth as far as one could see, having the appearance of black drifting snow, if I may so call it. By one o'clock the flight had completely passed: the wind at the time was blowing fresh from the south-east. In the afternoon, on sailing up the channel of Corfu, the traces of the passage of the flight were very evident, from the quantities of dead butterflies which floated on the surface of the water; and, for days afterwards, they were to be seen drifting into the various bays in the island of Corfu. I did not hear whether this flight had been observed on the Continent; but, as they appeared to be taking the direction of the coast of Italy, they would, in all probability, strike the land in the vicinity of Otranto."

Perth: October, 1872.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA AND SPECIES (No. 3).

BY F. BATES.

POLPOGENIA RIMOSA, *sp. n.*

Oblong-ovate, brown, with a slightly russet tinge; entirely encrusted with a granulous exudation, protruding through which may, under a strong power, be seen short, erect, stiff hairs, which at the sides of the prothorax and on the legs assume the character of pubescence; mandibles dilated, strongly keeled at the sides and excavated on each side of the keel, the upper excavation deep and broad; mentum broad, sub-angular at the sides, widely and angularly notched in front; labrum prominent, emarginate in front and ciliate, finely tuberculate, hairy; epistoma short, broadly emarginate in front, the suture separating it from the front represented by a linear depression which also extends backwards to the eyes, rapidly widening from the front backwards to the antennary orbits; the latter somewhat depressed above, very gradually rounded (from the point of junction with the epistoma) to the eyes, so that they appear almost continuous with the epistoma,

the point of junction of the two forming a very widely open angle; antennæ short, compact, 3rd joint sub-cylindrical or slightly obconical, joints 4—8 sub-equal, sub-moniliform, 9 a little larger and sub-obconical, 10 longer than 9, cylindrical, truncated at apex, 11 very short, transversely conical (or triangular), apex pointed; head imbedded in the prothorax up to the hind margin of the eyes, less gradually sloping in front than in *P. asidioides*, very finely tuberculated (the tubercles nearly hidden by the incrustation above mentioned); prothorax of the same form as in *P. asidioides*, the anterior angles distinct, finely tuberculated in the middle, much more strongly on the sides; elytra oblong-oval, squarely truncated and scarcely wider at the base than the base of the prothorax, humeral angles indistinct, regularly convex (*i. e.*, not perceptibly depressed on the back), the epipleuræ rounded (*i. e.*, not marked off from the sides by a keel-like costa), abruptly declivous behind, entirely and more or less strongly covered with irregular, transverse flexuous elevations, which are much broken up, giving an irregularly nodose or tuberculated appearance, the spaces between these elevations appearing irregularly foveated or slightly rimose; there are also apparent on each elytra four slightly elevated, interrupted costæ; situate on the top of these elevations (but more especially on those forming the costæ) are clusters of small, black, conical tubercles, and from each of these, as well as from those on the head and prothorax, arises a strong, pitchy, bristle-like hair, directed backwards; legs comparatively short, pubescent, bristly; anterior tibiæ slightly more triangular than in *P. asidioides*, the apex at the outer side sub-dentiform, the spurs very long and stout; the four hind tibiæ quadrangular; prosternal process more prominent than in *P. asidioides*, the mesosternum sub-horizontal and abutting to the prosternal process; epipleural fold somewhat broader behind than in *P. asidioides*; tarsi short, robust, the joints contracted.

Long. $5\frac{3}{4}$ lin.

Hab.: Niger; one example.

Taking the typical species, *Polpogenia* appears to differ from *Pterolasia* in having the mentum much broader, sub-angular at the sides, and strongly angularly notched in front; the labrum larger, more prominent, emarginate in front and without the transverse elevated line near the anterior border; the anterior angle of the prothorax distinct; the anterior tibiæ basally more robust, the outer apical angle more dentiform and the spurs longer and more robust; the prosternal process narrower, less expanded near the mesosternum, and curved round the coxæ; the outer joints (especially) of the antennæ differently formed; and the antennary orbits less prominent, less distinctly marked off from the epistoma and appearing almost continuous with it. The figures given by Solier (Tome 5, pl. iii, D, 17, and pl. iv, A, 4) are incorrect in this latter respect. In *Pterolasia* it will be found—when the head is looked at from the front—that the antennary orbits are prominent and abruptly rounded in front, so that the angle formed at the point of junction with the epistoma is considerably less open than in *Polpogenia*.

In the present species, the space between the sides of the mentum and the mandibles is somewhat wider, and the apical notch shallower, than in *asidioides*; the antennæ more nearly approach those of *Pterolasia* than *Polypogenia*, but joints 4—9, being shorter and stouter, appear sub-moniliform, and joint 9 is shorter instead of (as in *Pterolasia*) longer than 10. In the short, compact, cylindrical tarsi it differs from both *Polypogenia* and *Pterolasia*, agreeing, in this respect, more nearly with *Pachyscelis*.

MESOTRETIS, *nov. gen.* (*Ulomides*, Lac.).

Mentum trapezoidal, convex down the median line; last joint of labial palpi elongate-oval; the apex slightly obliquely truncated; that of the maxillary large, moderately securiform; mandibles bifid at the extremity; labrum transverse, emarginate in front; epistoma bent down in front, rapidly widened behind, arcuate-emarginate anteriorly, the fore angles rounded, the suture indistinct; antennary orbits small, not prominent, oblique; eyes large, prominent, free, lateral, entire, slightly transverse; antennæ longer than in *Tribolium* or *Phtora*, having a tri-articulate club, joint 3 longer than 2 or 4, 4—8 sub-equal or very gradually wider, 9 and 10 much larger and wider, sub-triangular, 11 large, sub-globular; prothorax wider than long, widest before the middle, thence slightly contracted to the base, anterior angles rounded, slightly arcuately emarginate at apex, the base slightly sinuously rounded, hind angles forming obtuse angles, finely margined at the base and for one-third at each side of the apex, the sides more strongly margined; scutellum large, rounded behind; elytra elongate, very gradually widened to beyond the middle, apex rounded, base slightly arcuately emarginate, wider than the prothorax at its base, shoulders somewhat prominent, humeral angle rounded, sides margined, epipleural fold complete behind, nearly as broad at apex as at the middle; prosternal process gradually expanding behind, the end broadly truncated: mesosternum strongly declivous; middle coxæ closely enclosed by the meso- and metasterna, the latter normal; femora compressed, elongate-oval, attenuate at base; tibiæ sub-linear, outer margin entire, outer apical angle not prominent; *tarsi dilated, pulvillate beneath, the penultimate joint sub-bilobed*; inter-coxal process narrowly rounded at apex.

A remarkable species, which, by the form, &c., of its tarsi, stands in the same relation to the *Triboliides* that *Alegoria* does to the *true Ulomides*, and should form a new "groupe" in the tribe; but, as these secondary groups are already numerous, I propose placing the present genus with the *Triboliides*, and *Alegoria* with the "*Ulomides vraies*;" the form of the head, mentum, antennæ, tibiæ, &c., will lend themselves to this arrangement; and, really, *Mesotretis* only differs from the *Triboliides*, and *Alegoria* from the *true Ulomides*, by the structure of the tarsi.

M. FERRUGINEA, *sp. n.*

Elongate, moderately convex; sub-nitid, yellowish ferruginous, with the suture

and extremities of thorax dusky, and two spots on the head, at each side the front, black; entirely and rather evenly, but not closely, punctured; prosternal process strongly rugose-punctate, the punctures between the coxæ very elongate; flanks of prothorax and sterna closely and somewhat coarsely punctured, rest of the underside finely and sparsely punctate; abdominal joints rugulose at the base.

Long. $1\frac{3}{4}$ —2 lin.

Hab.: Australia (King George's Sound); two examples.

Leicester: November, 1872.

DESCRIPTION OF A NEW GENUS AND SPECIES OF *HYDROPHILIDÆ*
FROM NEW ZEALAND, AND OF A NEW SPECIES OF *PHILHYDRUS*
FROM GREAT BRITAIN.

BY D. SHARP, M.B.

CYLOMA,* *nov. gen. Hydrophilidarum.*

Corpus ovatum, convexum; prothorace antrorsum angustato.

Antennæ 8-articulatæ.

Palpi maxillares articulo 2° incrassato.

Tarsi posteriores articulo primo quam 2° brevior.

Of the general form and appearance of a small *Cyclonotum*, but differing from that genus by the short basal joint of the hind tarsus. Maxillary palpi formed as in *Cercyon*. Antennæ 8-jointed; 1st joint elongate and slender, 2nd about as stout as first, but less than half as long, 3rd thinner than 2nd, and not quite so long, 4th joint small, scarcely broader than 3rd, about as long as broad, 5th joint very short and transverse, intermediate in width between the 4th and 6th; joints 6—8 form an elongate club. Hind tarsi short, about half as long as the tibiæ, basal joint shorter than 2nd, 3rd also shorter than 2nd, about as long as the 1st, 4th shorter than 3rd, 5th joint rather longer than 2nd. Claws small. Mesosternum visible between the middle legs as a small quadrangular or diamond-shaped plate, the front angle of which is prominent, and forms the lower part of a perpendicular carina.

The insect for which this genus is founded is of considerable interest, as it completes the connection between the *Sphæridiini* (*Geophilides*, Muls.) and the *Hydrophilini*. Though certainly belonging to the *Sphæridiini*, it possesses the short basal joint of the hind tarsus characteristic of the *Hydrophilini*. Its place is at the commencement of the *Sphæridiini*.

C. LAWSONUS, *sp. n.* *Niger, nitidus, antennarum stipite palpisque testaceis, pedibus piceis; corpore supra crebre evidenter punctato, elytris striato-punctatis, striis internis basi desinentibus.*

Hab.: Nov. Zeal.

Long. corp. $1\frac{2}{3}$ lin.; *lat.* 1 lin.

* A word without any classical derivation.—D. S.

I have received a single specimen of this very interesting insect from Mr. R. Lawson, of Scarborough; his brother captured it in the neighbourhood of Auckland, New Zealand.

Some two or three years ago, at a time when I was studying my British *Philhydrida*, I separated my specimens of *Philhydrus marginellus* into two apparently distinct species (besides *P. ovalis*, Th.). I did not, however, venture to call attention to this at the time, the material in my possession not being sufficient to justify me in coming to any positive conclusion. I have since, however, paid attention to the point, and hope I am right in announcing that the common *Philhydrus marginellus* of our collections must be considered as an undescribed species. I give below a description of it. I shall not here attempt to enter into the synonymy of *P. marginellus* and its allies, for it is of the most complicated and difficult character, and it must be left to a monographer of the genus to deal with it in a complete and satisfactory manner. I may, nevertheless, state that I think it will probably be found, that *P. ovalis*, Th., must bear the name of *marginellus*; and that *marginellus*, Th., is pretty certainly the *H. affinis* of Gyllenhal, and probably of Paykull, and will have to bear that name. I have also a fourth closely allied species, which I captured in abundance in the Asturias, and which I propose to describe under the name of *P. nigrinus*.

PHILHYDRUS SUTURALIS, *sp. n.*

Oblongo-ovalis, crebre punctatus, niger, prothorace elytrisque livide testaceis, illo disco infuscato, his suturâ nigrâ; clypeo utrinque maculâ laterali, palpis, antennarum basi tarsisque testaceis; tibiis piceis.

Long. $1\frac{3}{4}$ *lin.*

Var. palpis maxillaribus articulo secundo (interdumque quarto medio), leviter infuscato.

Palpi yellow (occasionally with the second joint and the middle of the last one a little clouded): Head black, with a distinct yellow spot on each side of the clypeus in front of the eye. Thorax yellowish, with the central part always much infuscate. Elytra yellowish, with the suture distinctly black. Tibiæ pitchy, tarsi yellowish.

Closely allied to *P. marginellus*, Th., but larger, the palpi yellow, the clypeus spotted and the punctuation of the upper surface slightly less marked.

Common both in England and Scotland.

Obs. In *P. marginellus*, Th., the elytra are of a browner colour, the thorax is darker, the head black and unspotted, and the last joint of the palpi black. *P. ovalis*, Th., is black, with the sides of the thorax and elytra yellowish, the palpi yellow, and the head unspotted.

Thornhill, Dumfries: October, 1872.

Observations on some British species of Dascillidæ, with description of a new species of Cyphon.—For some years past, I have diligently collected the species of *Cyphon* and the allied genera, and have thus accumulated a large mass of material in this very difficult and little attractive group. I have lately submitted this material to examination, and I give these observations as the result. The works that I have made use of for the purpose are chiefly those of Kiesenwetter, Thomson, and Tournier

1. *HELODES BOHEMANNI*, Mann. It has been suggested by Mulsant and Crotch that this is not a good species; but, on the other hand, Tournier accepts and maintains it, in which view I feel convinced that he is wrong. I have two specimens which I have no doubt are to be referred to *Bohemanni*, and I am quite convinced they are only a variety of *livida*. The characters given by Tournier do not accord very satisfactorily with those given by Thomson. The Swedish author, after mentioning one or two slight characters to differentiate *Bohemanni* from *livida*, adds the words "*tantum distincta*;" so that it would appear he has not much confidence in the species. Tournier maintains the species chiefly because of a difference in the thorax, and of the abdominal foveæ in the male. The development and form of the thorax I find, however, to be remarkably inconstant in both *H. livida* and *H. minuta*; and, as regards the abdominal foveæ, one has only to look at the plate in which these are represented by Tournier to be astonished that he should have attached much importance to so slight a difference in insects with such soft and pliable covering. I may add that my specimens of *H. livida* do not agree with the figure of either *livida* or *Bohemanni* as given by Tournier; so that if *Bohemanni* be maintained, our British specimens would have to be manufactured probably into a new species.
2. *CYPHON NITIDULUS*, Thoms. This species has been discriminated by Thomson from the *coarctatus* of the older authors, chiefly on account of a coarser and more distant punctuation of the elytra; but many specimens come very close to *C. coarctatus*. According to my experience, *C. nitidulus* is much commoner than *coarctatus*.
3. *C. FUSCICORNIS*, Thoms. Kiesenwetter has recorded that he has observed this insect coupled with *coarctatus*, and considers it the female of that species; though I have not observed the insects *in cop.*, I have, from the distribution and resemblance of the two, no doubt that his deduction is as correct as his observation.
4. *C. PALLIDIVENTRIS*, Thoms. The only characters of importance that distinguish this insect from *C. nitidulus* are just those that distinguish *fuscicornis* from *coarctatus*; and it, therefore, becomes highly probable, that, as *fuscicornis* = ♀ *coarctatus*, so *pallidiventris* = ♀ *nitidulus*. I have met with the two latter very often, and have reason to believe that this probability is a certainty.
5. *C. VARIABILIS*, Thoms. This is a most variable species in size, colour, form, and sculpture; and the *nigriceps* of Thomson and Kiesenwetter are, I believe, only varieties of it. I have distributed among my correspondents (under the M.S. name of *pallidiceps*) an insect appearing very different from ordinary *variabilis*,

but I am now convinced that this also is only a variety of that species. Small specimens of *variabilis* approach extremely closely to large *padi*, but I believe, nevertheless, the latter is really a distinct species.

6. *C. PALLIDULUS*, Boh. This insect comes so close to certain varieties of *variabilis*, that it is sometimes only to be distinguished by an examination of the under-side; it is then to be remarked, that, whereas *variabilis* has a very dense and fine punctuation and pubescence on the under-side of the hind-body, these are so much more scanty in *pallidulus* as to leave little doubt of its specific distinctness. This character to distinguish the two species can scarcely be considered as expressed by Tournier, who says of *variabilis*, "under-side of the body finely and densely punctured," and of *pallidulus*, "abdomen densely punctured." I cannot therefore feel certain that Tournier's *pallidulus* is really distinct from *variabilis*. In conclusion, I may mention that Mr. Waterhouse has proposed to call this insect *C. ochraceus*, Steph. Stephens' few words of description under this head contain nothing inapplicable to *pallidulus*, but he adds, "much less than either of the other species," whereas, the very common *C. padi*, described by Stephens immediately above *ochraceus*, is always smaller than *pallidulus*. It will be well, therefore, to abandon the *ochraceus* of Stephens, as well as the six other species proposed by him in the genus.

7. *C. PUNCTIPENNIS*, n. sp. *Ovalis, convexus, sat nitidus, parcius brevissimeque pubescens; niger, prothorace, elytris pedibusque rufo-testaceis, antennis basi obscure rufescentibus: elytris basi fortiter minus crebre punctatis, suturâ haud infuscatâ; abdomine dense subtilissime punctulato.* Long. $1\frac{1}{4}$ lin.

Var. elytris infuscatâ, apice quam basin dilutioribus.

Allied to *C. variabilis*, but shorter, broader, and more convex, and distinguished from all the varieties of that most variable species by its extremely short, fine and scanty pubescence; its elytra also are more sparingly punctured, with the punctuation at the base coarser than in any *C. variabilis*. The third joint of the antennæ is also rather shorter than is usual in *variabilis*. The sculpture and pubescence of the elytra are so markedly different from what obtains in any other of our species, that if attention be paid to them no mistake will be made in determining this insect.

This is the species intended to be referred to in my Catalogue by the name *nigriceps*, Th.; it appears, however, to be not the *nigriceps* either of Kiesenwetter or Thomson. Tournier (who received types from Kiesenwetter) states that the *nigriceps* of that author is only *variabilis*; and the *nigriceps* of Thomson is certainly not the species I am now describing, as Thomson says "*sutura postice infuscatâ*," this being never the case in *punctipennis*.

C. punctipennis is rare, and has, I believe, been found only in Scotland, in two or three localities; I have taken it at Rannoch, and on the Keir Hills, Thornhill. It lives in moss in wet places on the moors, and is especially to be found among moss growing thickly with heather, and mixed with reindeer lichen. I have obtained a fine series by repeated searchings in the second of the above mentioned localities.—D. SHARP, Thornhill, Dumfries: Oct. 25th, 1872.

Additions to the list of British Coleoptera, &c., including description of a new species of Thyamis.

LITHOCHARIS PICEA, Kraatz, Ann. Soc. Ent. France, 1858, Bull. p. cxc. — Among some *Coleoptera* submitted to me for examination by Mr. G. C. Champion are a few examples of this well marked species, originally stated to occur near Paris, and of which I do not remember any subsequent record. These examples were taken late in the present autumn by Mr. Champion, when sifting dead leaves in Bexley Wood, Kent. The species, on account of its colour (dark pitchy, with rather lighter elytra, and ferruginous legs and antennæ, the latter of which have the six basal joints slightly infuscated), is readily distinguishable from all our recorded species; and, indeed, can only be compared with *L. rufiventris*, Nordm., not yet observed in this country, and from which it differs materially in the punctuation of the head. It is in the same section as *L. fuscula* and *brunnea*, being of the average size of the latter, from which it may be known, apart from the above mentioned characters, by its broader build, more slender antennæ, more finely and closely punctured head, more obsoletely punctured thorax, and much longer elytra. The ♂ appears to have the hind margin of the penultimate ventral segment entire.

MELIGETHES OCHROPUS, (Sturm) Erichson, Ins. Deutschl., iii, p. 180. — It may be remembered that this species has already been registered as British, but erroneously, as the specimens so recorded proved to be *M. brunnicornis*. I have now the satisfaction of adding *M. ochropus* to our list, without a doubt of its correctness, on the authority of two examples recently detected by myself amongst *M. difficilis* in Dr. Power's collection, taken by him in June and August, 1862, in the New Forest, Hants. I have also recently found a specimen among some unexamined beetles taken by myself during the past autumn: this one was from Claygate, Esher, where I found it with *brunnicornis* in September. The species is readily separable from its yellow-legged allies by its very broad and short oval form, strong convexity, and very widely and at the same time coarsely punctured elytra, on which the pubescence is extremely short, and by the outer margin of its posterior tibiæ not being rounded outwards, but dilated in a straight line until the lower third, where they are suddenly and obliquely contracted. The armature of the anterior tibiæ is as in *difficilis*, only not nearly so long or sharp.

It appears to occur on *Lamium album*.

MELIGETHES KUNZEI, Er., according to Reitter (Rev. der europ. Melig. Arten, p. 86), is only a var. of *difficilis*; but in this opinion I cannot agree, having taken (always on *Lamium album*) great numbers of the latter, exhibiting the usual degrees of small difference likely to occur in any species, but without ever finding amongst them anything approaching to *M. Kunzei*, which has only occurred to me by sporadic individuals, and which, from Mr. Champion's observations (p. 159), seems to occur on *Agraphis* or *Melampyrum*. Herr Reitter notices the greyish-white and extremely fine pubescence, very dark (almost purplish) black and shining surface (never with greenish metallic reflections on the thorax), lighter coloured legs and antennæ, and less strongly developed teeth at the apex of the anterior tibiæ of *M. Kunzei*; but he says nothing of its considerably wider punctuation (mentioned by Erichson). I observe, also, that it is comparatively a narrower insect than *difficilis*, with the outer edge of the posterior tibiæ, as in *ochropus*, not rounded outwards for its upper two-

thirds, and the setæ of the middle and posterior tibiæ much thinner, shorter and lighter in colour. From a superficial view, it is easier to detect *M. Kunzei* than any of its allies.

MELIGETHES MARRUBII, Brisout, = *nanus*, Er., according to Reitter, *l. c.* p. 53, and is recorded as occurring on *Erysimum alliaria* and *Salix aurita*, as well as *Marrubium*. I have detected a third British specimen of this insect, in Dr. Power's collection, taken at Horsell, near Woking, and which is remarkable for its almost wholly bright yellow antennæ and legs.

MELIGETHES MUTABILIS, Rosenh., with which M. Brisout has identified my *M. pictus*, is itself, according to Herr Reitter, *l. c.* p. 124, a var. of *brevis*, Sturm, with which, however, I fail satisfactorily to reconcile my species.

NANOPHYES GRACILIS, Redtenbacher, Faun. Austr. p. 370 (2nd ed. p. 819).

I have much and unexpected pleasure in adding a companion to our hitherto solitary exponent of this genus, having taken a single example of the above named species near Esher in September last. It is of the size of medium specimens of the common *N. lythri*, from which it is instantly separable by all its femora having two small sharp spines on the under-side, between the middle and the apex, and of which the one nearer the apex is much the smallest. It is also readily distinguishable from *lythri* by its longer and thinner legs, antennæ and rostrum, its less evident pubescence, and broader and much less acuminate elytra, of which the interstices are flat. Although *lythri* is so variable in colour, I can find none to match this specimen, which has yellow legs, with the tips of the femora narrowly black, the club and most of the funiculus of the antennæ, the head, thorax, and an irregular basal patch (somewhat triangular in shape, and produced in the middle below the scutellum for quite the upper third of the elytra), also black. The rest of the elytra is reddish-yellow, with two very faintly indicated small darker spots on the 5th interstice, and another on the 3rd, near the apex. Beneath it is entirely black.

I know of no other but Redtenbacher's original record (1849),—only once taken near Vienna. De Marseul only quotes it from Germany; and Bach (Käf. Fauna, p. 386) vaguely says it is rare, and as yet only known in the South.

THYAMIS DISTINGUENDA, *sp. n.*

Oblongus, apterus, capite cum thorace nitidis, elytris propter superficiem minute alutaceam nitidiusculis; ferrugineus, subtus obscurior, femoribus posticis ad apicem late, tarsorum articulo apicali, antennarumque articulis sex apicalibus plus minusve, nigro-piceis; thorace vel concolore vel rufo-fuscescente, crebre leviter, sæpe fere obsolete, punctulato; antennis validioribus, longitudine corpori fere æqualibus; elytris ad basin quam thorax evidenter latioribus, humeris sub-prominulis, suturâ anguste rufescente, sat profunde punctatis, punctis prope basin fere seriatim dispositis, angulo suturali obtusiusculo.

♂ abdominis segmento ventrali medio longitudinaliter lævigato-impresso, margine postico incrassato; tarsorum anticorum articulo basali intus apicem versùs triangulariter dilatato-producto. Long. corp. 1—1½ lin. (Anglic.).

T. atricillæ, Gyll., affinis, maximisque ejus exemplis staturâ æqualis, at minus regulariter ovalis; antennis validioribus, ad basin evidenter sat abrupte dilutioribus,

capite dilutiore cum thorace haud æneo-micantibus, elytrorum humeris comparatim sat prominulis, punctis plerumque (ac præcipue basin versus) seriatim dispositis, angulo suturali minus obtuso, tibiæ posticarum calcari multo longiori, tarsisque posticis longioribus, optime distinguenda.

I have for some time had an example of this species, taken by myself at Mickleham, undetermined in my collection, as allied to *atricilla*; but it was not until recently, on seeing several specimens of it (taken by Mr. Champion, according to his recollection on *Senecio jacobææ*, at Box Hill, during September last), that I felt convinced of its separate specific value.

Of European species not recorded as British, it would seem in many characters to approach *T. crassicornis*, Foudras; but the entirely obsolete or absent thoracic punctuation of that insect, and the fact of Allard stating the joints of its antennæ to be more slender and longer than in *melanocephala*, render further comparison needless.

It seems nearest to *atricilla*, Gyll., differing from that common species, as above noted, in being of average rather larger size, without a dark brassy head and thorax, of less regularly oval outline, the greatest width being nearer the apex, with more perceptible shoulders to the elytra (of which the punctuation is rather stronger and in most of the specimens evidently disposed in striæ, especially towards the base, and the apical angle is not so rounded off, being scarcely more obtuse than in *melanocephala*), and with longer posterior tarsi, and a longer and stronger spur to the posterior tibiæ. The principal character, however, seems to be in the antennæ, which, for a *Thyamis*, are unusually stout, being in both sexes more so than in *atricilla*, and, indeed, than in any other of the genus known to me. The basal joint is as long as joints 2 and 3 together, and is considerably thickened and curved outwards towards the apex, joints 2 and 3 are short, 3 being rather the longer, 4 and 5 are sub-equal, each much longer than 3, and from thence to the apex the joints become gradually rather shorter and wider. The punctuation of the thorax, though very shallow and not clearly defined, is tolerably close, and in some examples almost confluent, the surface thereby becoming apparently slightly roughened, but there is a great latitude in this respect, as in others only traces of similar punctuation can be seen; in like manner the punctuation of the elytra is in some specimens more confused than in others, the tendency to striæ becoming thereby less perceptible.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: November, 1872.

Note on a recent capture of Lymerixylon navale in Cheshire.—I have been so fortunate as to capture five examples of the above species, hitherto somewhat doubtful as British, during the past season, at rest on the root end of a felled oak which was struck with lightning about four years ago, one side being destroyed. I found them all within a radius of eight inches, at four different times,—one on the 20th and two on the 27th of July, one on the 3rd and another in the latter end of August; this last specimen my friend, Mr. Sidebotham, had the pleasure of seeing alive.

Mr. Sidebotham and I visited the tree about the middle of August, and found what we believed to be the burrows of the *Lymerixylon*, as we observed in them the exuvæ of beetle pupæ. Mr. Sidebotham has since, by digging into the wood of the tree, found a dead specimen, and also larvæ that are no doubt those of *Lymerixylon*.—JOSEPH CHAPPELL, 1, Naylor Street, Hulme, Manchester: 26th October, 1872.

Capture of Tachinus rufipennis in Yorkshire.—On the 9th of April last, I beat out of a dead grouse, on a moor near Kettlewell, in Yorkshire, a single specimen of *Tachinus rufipennis*. It was named by Mr. Crotch, who has compared it for me with the first specimen recorded as British, from Mr. Wollaston's collection.—W. C. MARSHALL, Trinity College, Cambridge : 25th October, 1872.

Notes on Coleoptera at Caterham, Surrey.—Having during the past year had occasional opportunities for an hour or two's collecting, on the chalk hills, &c., in the neighbourhood of Caterham, Surrey, I thought a few notes on the *Coleoptera* observed there by me would not be uninteresting to the readers of this Magazine. Several of the species taken, were for the first time seen alive by me, and a few new to my collection. The following list does not, I believe, by any means exhaust the locality, as most of my collecting, has been over the same ground, and even there each successive visit has invariably produced some species not previously seen. The majority of the better species only occurred singly, and several of my captures were evidently "flukes."

The following list include the better species met with, viz. :—*Panagæus 4-pustulatus*, in moss. *Oxypoda nigrina*, by sweeping. *Homalota hepatica*, once brushed from herbage at the side of a shady lane; *H. scapularis*, *intermedia* and *validiuscula*, by sweeping. *Mycetoporus brunneus*, *clavicornis* and *longulus*, by sweeping towards evening; *M. nanus*, in moss on a chalky bank, in winter. *Ocyppus morio* (small form) and *similis*, in moss. *Staphylinus latebricola*, once in moss in a chalky hollow, in April; *S. stercorarius*, running about in the sunshine. *Stenus ater* and *fuscipes*, in moss. *Homalium pygmæum*, on the wing. *Pseudopsis*, brushed up. *Colon Zebei*, a fine ♂, brushed up towards evening, August 6th. *C. brunneum*, *Euthia plicata*, *Scydmanus denticornis*, *elongatulus*, and *Sparshalli*, by evening sweeping. *S. præteritus*, Rye, one specimen in moss with ants, April, and a second swept up in July. *Hydnobius strigosus*, a few specimens, by evening sweeping in July and August. *Anisotoma cinnamomea*, rarely, by evening sweeping; *A. grandis* (?), one very large ♂ specimen, swept towards evening from long grass and *Mercurialis* under some old beech trees, in August; *A. badia* (in moss), *dubia*, *ovalis*, *parvula* (occasionally), and, of course, *calcarata*, by evening sweeping. *Agaricophagus cephalotes*, a ♂ and ♀ swept up towards evening on two different occasions in September. *Cyrtusa pauxilla* (*minuta*, Wat. Cat.) and *Colenis dentipes*, by evening sweeping. *Saprinus virescens*, by sweeping on chalk downs. *Meligethes* is well represented in this district, as I have here found 23 of our 32 British species, the most noteworthy being *M. corvinus*, three specimens (Ent. Mo. Mag., ix, p. 37), taken by sweeping *Agraphis nutans* (wild hyacinth), *Melampyrum pratense*, &c., in a wood, in company with a few specimens each of *symphyti* and *Kunzei*, at the end of May; *M. difficilis*, *memnonius*, *brunnicornis*, *pedicularius*, *umbrosus*, *ovatus*, and *distinctus*, by promiscuous sweeping; *bidens*, off *Teucrium*, as usual; *serripes*, rarely, on *Echium vulgare*; *lugubris* (the larger form rare, the smaller tolerably common), by sweeping, also in moss in winter; and a ♀ specimen of a species probably distinct from *erythropus*, and in that case most likely *bidentatus*, Bris., by sweeping on the chalk. *Læmophlæus ferrugineus*, under bark of elm: this generally occurs with me in haystack refuse. *Phalacrus Humberti*, Tourn. *Olibrus millefolii*, *Antherophagus silaceus* (once) and *nigricornis*, by promiscuous sweeping. *Cryptophagus pubescens*

and *setulosus*, *Atomaria ferruginea* and *fuscipes*, occasionally, by sweeping in a shady lane. *Syncalyptra spinosa*, common in moss on the chalk in winter. *Aphodius obliteratus*, on the wing. *Drilus flavescens*, rarely. *Aspidophorus orbiculatus*, occasionally by sweeping. *Salpingus æratus*, Muls., a single specimen, by sweeping towards evening, in August. *Platytarsus setulosus* ("*Strophosomus hirtus*"), one specimen in moss (amongst primroses), in a hollow on the chalk hills, in April. *Orthochates setiger*, in moss. One specimen of a *Smicronyx* (possibly true *pygmæus*), and *Tychius squamulatus*, *tomentosus*, and *curtus*, by sweeping on the chalk downs; *T. lineatulus*, Bris., common, on *Anthyllis vulneraria*, in June. *Gymnetron melanarium*, *Miarus campanulæ* (common), and *Orobitis cyaneus*, by promiscuous sweeping. *Ceuthorhynchus punctiger*, two or three specimens, in moss, and flowers, and by sweeping; *C. urticae*, a dozen examples by continually working at the nettles (as at Mickleham, in company with swarms of *Caliodes didymus*, but easily recognized in the net by its longer form, and when, feigning death, by its longer and more projecting rostrum), in May and June; *C. alliariae*, on *Erysimum*, and *terminatus* by sweeping. *Baridius picicornis*, at its usual food plant. *Apion subulatum*, on *Lathyrus pratensis*; *A. atomarium*, *annulipes*, Wenck. (♀), probably swept off *Thymus* or *Origanum*; *A. filirostre* not rare, occurring sometimes in moss during winter. *Hylesinus oleiperda*, *Lamprosoma concolor* and *Cryptocephalus moræi*, by sweeping. *Crepidodera atropæ*, swarming, in early summer, on *Atropa belladonna*, the leaves of which it riddles to a large extent. *Cassida hemisphærica* and *nobilis* by sweeping.

Before concluding, I think it as well to mention, that there is one insect very common here on the chalk in August and September, and which I devoutly wish was wholly absent, viz., *Leptus autumnalis* (too well known in the vernacular as "the harvest bug").—G. C. CHAMPION, 274, Walworth Road, London, S.: 5th October, 1872.

Occurrence near Dover of Syntomis Phegea, L., a genus and species new to Britain.—A specimen of this insect was taken on the 24th June last near Dover by Mr. J. G. Batchelor. When first seen, it was flying very leisurely in the sunshine, and was easily captured.

I have great hopes that this conspicuous addition to our fauna will occur again in the same neighbourhood; having no doubt whatever, from the freshness of this specimen, which appeared to have just emerged from the pupa, that it had existed there in the larval state; indeed, I cannot conceive that it could have reached this country from the Continent in so perfect a condition, if at all,—and more especially so, as (according to continental authors) it does not appear to be found in any localities nearer to Britain than those departments of France which are nearest to Italy; and even there it seems to be quite local, though abundant where it is found.

The moth may be briefly characterized as follows:—Expanse of wings, $1\frac{1}{2}$ in.: deep glossy blue-black, tips of antennæ white, abdomen with a crescent-shaped spot at base and band on 5th segment golden-yellow. Fore-wings with six white semi-hyaline spots, one basal, two (larger) sub-median, and three (smaller) sub-apical. Hind-wing with two similar spots, one basal, the other central.—N. E. BROWN, Brighton Road, Red Hill, Surrey, Surrey: November, 1872.

[*S. Phegea* occurs at Louvain, in Belgium, flying on the old ramparts in the hottest sunshine (Ann. Ent. Soc. Belg. I, p. 44).—Eds.]

Argynnis Lathonia at Dover.—On a slope of the downs near the Coastguard Station at the Zig-zag, Dover, on the 16th September, a young friend and I captured five perfect specimens of *A. Lathonia* in about two hours. Three days later we took a sixth on the same spot, but it was much damaged by the weather.—EDITH C. FOORD, Allinum Lodge, Bexley Heath, Kent: November, 1872.

Vanessa Antiopa in Leicestershire.—Since my notice of this insect occurring in Leicester, I have seen another specimen of it, caught in this county. The margins of the wings were chalky-white; and it was not in worse condition than might be expected from its having been knocked down and caught with a hat.—F. BATES, 15, Northampton Square, Leicester: 31st October, 1872.

Vanessa Antiopa in Morayshire.—It may be as well to record the occurrence of another specimen in this county. I received one yesterday from my friend, Dr. Gordon, of Burgie Castle. It was sent to me to be set, being still alive, and had been taken some time ago in the grounds at Burgie.

I am strongly of opinion that my friend, Mr. Doubleday, is correct in maintaining that the whole of the specimens recently taken in this country are native bred. The perfect lustre of their wings and the uninjured state of the body hairs are strong points of evidence against the "flown-over" theory.

I would, however, suggest the following as a solution of the mystery, supposing the insect is not permanently established in Britain:—

Hibernated specimens might easily be blown over from Scandinavia during the prevailing N.E. winds of the spring months: the females would lay their eggs on the sallows, and the perfect insects appear in August, without question, "true-born Britons."—G. NORMAN, Cluny Hill, Forres, N.B.: October 24th, 1872.

Vanessa Antiopa in November.—I shall, I dare say, add the last in date to the long list of captures of *V. Antiopa*. I have been watching for it here all the summer, but without success; and was, therefore, surprised to see and take one last Friday, November 1st, seated upon a piece of bare earth where some heath had been cut down. I must also add one more to the number of those who entirely disbelieve that this butterfly comes to us as a stranger; although, once when Mr. Hancock and I were crossing from Boulogne, we saw a specimen of it midway in the channel.—W. C. HEWITSON, Oatlands, Weybridge: 4th November, 1872.

Crambus Ferellus.—When recently naming my *Crambites* for me, Mr. Howard Vaughan discovered an example of this species, which I find by my journal was caught by Master Melville A. Addison, in Beachborough Wood, Folkestone, during August, 1865. He was then quite a beginner; and, not caring for small things, allowed me to box the specimen from his net. It was flying on an oak-tree, and is in fine condition; and has escaped record before this time as it was named a few years ago by a well known entomologist as a variety of *pratellus*.—H. RAMSAY COX, West Dulwich: November, 1872.

Cucullia absynthii in Somersetshire.—My brother has just brought me some larvæ of this species, which he found on the coast of the Bristol Channel, near Minehead. I do not think they have been previously met with in the county.—ALFRED E. HUDD, Redland: October 8th, 1872.

New locality for Cucullia asteris, &c.—Having, accidentally, brought home a larva whilst collecting amongst golden-rod at Witherslack, which turns out to be *C. asteris*, Mr. Threlfall and I re-visited the locality in search of more, and brought home about 20 of them. Amongst them, I am in hopes (from the description Mr. Buckler gave me of the larva of *C. gnaphalii*) I have also fallen in with that. We also met with several larvæ of *Botys terrealis*, which, as well as the *C. asteris*, I have sent to Mr. Buckler for figuring. Moths were very scarce, the only things we cared to box were *Zelleria insignipennella*, *Gracilaria stigmatella* and *populetorum*, and *Thera firmata*.—J. B. HODGKINSON, 15, Spring Bank, Preston: September 16th, 1872.

Captures of Lepidoptera near Fleetwood.—My eager young friend, Mr. H. Threlfall, and I paid a visit to the banks of the Wyre, above Fleetwood, early in August. On the way from Cleveleys Station we took *Melanippe unangulata* and *Eupithecia subfulvata*, and, amongst some alder on the river bank, *Melanthia rubiginata* and var. *plumbata*; from an old hedge we dislodged *Emmelesia unifasciata* and two *Depressaria Douglasella*; on an extensive salt-marsh we took more than 100 *Eupæcilia Vectisana*, and some of *E. affinitana*, which look as if they were large pale females of *E. Vectisana*. Amongst *Aster tripolium*, *Bucculatrix maritima* abounded, both in the larva and pupa states, but, though I collected some hundreds, I have only bred about half-a-dozen specimens, though lots of ichneumons; we also took two or three specimens of a *Coleophora*, which I do not know: it may be *binotapennella*.

Re-visiting the locality a few days ago, we got a number of *Eupithecia* larvæ, and about 20 larvæ of *Emmelesia unifasciata*; these drop off the plant very easily, and it requires some care to collect them. The only moth we got worth boxing was *Depressaria rhodochrella*; the wind was so high that it blew everything away.—ID.

Captures of Lepidoptera in the Isle of Sheppy in 1872.—A few interesting species of *Lepidoptera* have fallen to my share during the past unfavourable season, of which the following are perhaps worthy of a short notice:—*Colias Hyale*; fairly common in lucerne fields, towards the end of August; it was much more plentiful than its congener *Edusa*, of which I only saw three or four specimens. *Acherontia Atropos*; a good many pupæ, found in digging up potatoes, and brought to me by labourers, &c. *Sphinx convolvuli*; two pupæ, brought along with those of *Atropos*, and found under similar circumstances. *Trochilium ichneumoniforme*; a pair on the cliffs. *Cenistis quadra*; a fine ♂ beaten out of an ash tree. *Spilosoma papyratia*; two or three at rest on hedge-banks, &c. *Ennomos fuscantaria*; one bred from larva found on ash, another at a gas-lamp. *Tephrosia loricaria*; one on a fence, in July. *Acidalia rusticata*; another solitary example, at rest, within twenty yards of the spot where one occurred last year: I searched in vain for more. *A. emutaria*; rather late in its appearance this season, none appearing until July 3rd, after which it was, luckily, by no means rare, and I secured a considerable number, by dint of hard work. Nearly all that I took occurred on the banks of one ditch near the shore, about 400 yards long; they began to fly about half an hour after sunset, and settled down on the grass and herbage as soon as it was quite dark, being then easily found with the aid of a lantern. This species is really very difficult to obtain in

good condition, and is more active on the wing than any other *Acidalia* with which I am acquainted. *Eupithecia succenturiata*; one specimen, flying in the evening sunshine. *E. subumbrata*; this pretty little "pug" occurred very freely on rough, broken ground on the cliffs, flying actively in the afternoon and evening. *E. denotata*, *abbreviata*, and *coronata*; one of each at rest, in April. *Anticlea rubidata*; not rare, flying at dusk. *Leucania comma*; rare, at sugar. *Nonagria crassicornis*; a very light-coloured ♂, bred from a pupa found in a stem of *Typha latifolia*. *Hydræcia nictitans* and *micacea*; settled on flowers of *Statice limonium* after dark, the former being very plentiful. *Xylophasia polyodon*; one black variety at sugar. *Mamestra abjecta*; a nice series at sugar, also rarely at rest. *Agrotis corticea*; common at sugar. *A. ravida*; rather common, by beating thatch, as before; also occasionally at sugar. *Xylina semibrunnea*; in spring and autumn, but very scarce this year. *Aglossa cuprealis*; rare, in outhouses. *Endotricha flammealis*; not uncommon in hedges. *Spilodes palealis*; one on the cliffs, in July, among *Daucus carota*; another very fine specimen in a lucerne field, at the end of August. *Scopula ferrugalis*; common, on ivy-bloom. *Eudorea angustea*; rare, at rest. *E. pallida*; common among grass on the cliffs. *Ephestia elutella*; freely, by beating a hay-stack. *Homæosoma senecionis*; a few on the cliffs: I saw traces of the larvæ in the flower-heads of the ragwort, but failed to rear any. *H. sinuella*; common in dry, grassy places. *Oncocera alienella*; one on a lighted window. *Rhodophaa formosella*; rare, by beating, and at light. *R. tumidella*; one specimen on the cliffs. *Crambus inquinatellus* and *selasellus*; not rare in a salt-marsh. *Xylophoda pariana*; abundant, by beating thatch. *Agdistes Bennettii*; this curious insect was pretty common at the end of July, flying at dusk over *Statice limonium*. *Pterophorus ochrodactylus* and *acanthodactylus*; common among their respective food-plants, *Achillea millefolium* and *Ononis arvensis*: I was rather surprised to see a good many specimens of *acanthodactylus* on ivy-bloom in October.

I picked up a beautifully fresh and perfect fore-wing of *Geometra smaragdaria* in the dockyard; but, in spite of a long search, failed to find the remainder of the insect, whose career had no doubt been cut short by some hungry bat.—JAMES J. WALKER, 7, West Street, Blue Town, Sheerness: November 6th, 1872.

A case of mimetic analogy among the British Geometræ.—With the exception of the clear-winged moths of the genera *Macroglossa* and *Sesia*, the only case of mimicry hitherto recorded among the British *Lepidoptera*, is that of *Diaphora mendica*, ♀, which Mr. Wallace regards as a probable mimic of *Spilosoma menthastri*. I am convinced that another case of mimicry occurs among our native *Geometræ*, the imitated form being *Asthena candida*, and the mimic *Acidalia subsericeata*. The mimic will be found to fulfil all the necessary conditions. It is undistinguishable from *A. candida* when on the wing: it is rarer than this insect, and flies at the same period of the year and in the same localities. That the two species are almost co-extensive in range may be seen by referring to Mr. H. Jenner-Fust's 'Tables of the Distribution of the British Lepidoptera.'

Finally, *A. candida* has all the characteristics of a protected race, being of a most conspicuous white colour, and so abundant in individuals as to quite enliven our woods on evenings towards the end of May and beginning of June.—R. MELDOLA, Brentford: October, 1872.

Rare Lepidoptera in the Isle of Man.—Mr. Hodgkinson having, in the Oct. number of 'The Entomologist's Monthly Magazine,' mentioned my name in connection with certain *Lepidoptera* said to have been taken in the Isle of Man, I am reluctantly compelled to send a few lines in reply to his statement.

Unfortunately, I cannot find Mr. Gregson's letter in which he mentions the capture of *Agrotis spinifera*, but I feel convinced that he did not say he took it himself. I believe he said that it was captured by a resident in the Isle of Man in the autumn, after the collectors, who annually visit the island, had left. Mr. Hodgkinson says it was sent to me alive: this is certainly a mistake. I have no recollection of ever having seen the specimen, but Mr. Gregson said he did send it to me *unset*, and that I returned it to him without any remark. I never received this species from any of my continental friends; and, till very lately, it has been extremely rare. It inhabits Sicily and the South of Spain, and the larva has recently been found near Barcelona.

I remember seeing the specimen of *L. exigua*, but it was not alive; it was dry, and the thorax crushed.

I will give Mr. Gregson's own words about the capture of *Micra parva*, contained in a letter received from him last spring, but with no date:—

"The *Micra* was taken and pinned by my late friend, Mr. Potter, at Growdale, Isle of Man. He never set an insect, but as I gave him pins, and shewed him how I liked to have them pinned, he took great pleasure in capturing anything he saw for me, this among the number; and I thought you would like to see it as it came from his hands, rather than when it had been set after being dry. It was taken in 1870, after the end of June and before the end of August."—HENRY DOUBLEDAY, Epping: October 12th, 1872.

Note on Crinodes Sommeri and Tarsolepis remicauda.—In the Ent. Mo. Mag., and Ann. Nat. Hist., of last October, Mr. Butler rejects my opinion concerning the synonymy of the above named moths. It is, however, clear that, when he made the description of Mr. Cornthwaite's insect, Mr. Butler was totally unacquainted with Hübner's *Crino Sommeri*, and that it was only after the publication of my synonymical note that he compared his new (?) species with Hübner's figures, and endeavoured to find some differences to justify him in retaining his names. If this be not so, why did he not mention this (to say the least) very similar moth, and add the supposed generic and specific differences to the description of his supposed new species?

Mr. Butler considers *Crino Besckei* as the type of the genus *Crino*, because that species is figured before *C. Sommeri*. But, if attention be given to the characters ascribed by Hübner ("Verzeichniss bekannter Schmetterlinge," p. 216) to this genus ("Die Schwingen blasssenig, dunkelstriemig, und mit glänzend weissen Flecken geziert"), it is evident that he really had in view the species called by him *C. Sommeri*, and that these characters apply, without any modification, to *Tarsolepis remicauda*, Butler. As regards *C. Besckei*, it is clear that Hübner was not attached to the so-called "type-system;" and, consequently, we have nothing to do here with the last-named species. I am, therefore, still of opinion that *Tarsolepis remicauda*, Butler, ought without doubt to be transferred to the genus *Crino*, Hübner, = *Crinodes*, Herrich-Schäffer.

Although Mr. Butler believes that Hübner's figure is intended to represent a male insect, as possessing a well developed anal tuft of radiating scales (this character, however, occurs also in the Javanese females, and is, therefore, without value), I rather believe it to be meant for a female, on account of the feebly pectinated antennæ. The anal tuft, as it entirely covers the sexual organs, may have been the cause of Hübner's mistake. In such cases, only an examination of the retinaculum can furnish positive evidence of the sex of the individual.

The want of the two long tufts of carmine hairs at the base of the abdomen most probably must be ascribed to the sex, such tufts being apparently confined (at this moment I do not recollect an instance to the contrary) to the male insect. They are often totally hidden; and this, probably, is the case with the male in Mr. Snellen's collection.

As for the length of the palpi, I notice that the females examined by me agree in this respect with Hübner's figures, and that Mr. Snellen's specimen (♂) holds an intermediate position between Hübner's and Butler's insects.

I think, also, no value can be attached to the size of the abdomen or to its spinous processes as figured by Hübner;—the former depending chiefly upon sex or desiccation, and the latter, formed by some diverging long scales on the sides of the abdomen, occurring also in Mr. Snellen's male. Moreover, I fail to understand how Mr. Butler can regard these processes as a *generic* difference, seeing that there is nothing visible of this character in the representation of *Crino Besckei*, the species which, according to him, should be the type of the genus *Crino*.

The specific differences summed up by Mr. Butler must certainly be ascribed for the most part to inaccuracies of the draughtsman. In order to prove this, it may be sufficient to fix the attention upon the inner margin of the front wings in both of Hübner's figures, which is waved only in fig. 1, and also upon the hind-wings in the same figure, which are unlike one another. Moreover, Hübner's figures are entirely too dark in colour, and have almost all the markings (the pale basal patches excepted) too sharply defined, instead of the under-side of the wings only, as Mr. Butler states (as for the latter character, I rather incline to the contrary opinion).

In the specimens examined by me, the pale costal band does not totally extend to the apex and is broader than in Mr. Butler's figure, especially at the base of the wings; the central marginal line of the hind-wings is continued round the margin, but, on both the upper and under-sides, is converted into spots, as in Hübner's fig. 2; the transverse band of the front wings is strongly waved and not nearly parallel to the outer margin, and the fringe of all the wings is tolerably long.

For these reasons, I persist in my assertion that *Tarsolepis remicauda*, Butler, is identical, generically as well as specifically, with Hübner's *Crinodes Sommeri*.

I think it not impossible that *C. Sommeri* occurs also in the New World,* although I rather believe it to be so considered in error, as seems to be the case with *Hemeroblemma peropaca*, which, according to Hübner ("Zuträge zur Sammlung exotischer Schmetterlinge," No. 271, fig. 541 and 542), is found at Monte Video,

* I am informed (October 14th, 1872) by Mr. F. Walker, that at present he has no opportunity of inspecting the specimen from Rio Janeiro, mentioned in the "List of the Specimens of Lepidopterous Insects in the Collection of the British Museum," which is no longer in Mr. Fry's collection.—C. R.

but since that time has been sent over from Sumatra, Java, Ternate (coll. Royal Mus. Leyden), and Celebes (Mr. Snellen's coll.), and also with *Ophiura magica*, received by Dr. Boisduval from Madagascar and Bengal ("Faune entomologique de Madagascar, Bourbon et Maurice: Lepidoptères," p. 100), and by the Leyden Museum, from Java, and not from Monte Video as stated by Hübner ("Zuträge, &c.," No. 268, figs. 535 and 536).—C. RITSEMA, Leyden: November, 1872.

The larva of the Trichopterous genus Brachycentrus, and its case.—For a long time we have been aware of the existence of curious *quadrangular* caddis-fly cases manufactured out of vegetable matters. A detailed account of several forms of these cases (with notes on the dead larvæ therein contained) was given by Hagen in the Stettiner entomologische Zeitung for 1864, pp. 113—115, and he concludes by hinting that they may belong to the genus *Brachycentrus*, the earlier stages of which were unknown. In 1865, in my 'Trichoptera Britannica,' I figured (pl. ii, fig. 34) a case of this kind, found by Mr. Parfitt near Exeter, in deep running water. In the No. of the Annals and Mag. Nat. Hist. for June, 1867, Mr. Eaton gave a description, with figures, of the empty pupa-skin of *Brachycentrus subnubilus*, but he possessed no information as to larva and case. I am now able to confirm Dr. Hagen's suspicions, that some, at least, of the quadrangular cases are the work of the larva of *Brachycentrus*. Mr. W. C. Boyd finds *B. subnubilus* abundantly at Cheshunt, and this spring he placed several batches of eggs, laid by captured females, in an aquarium. A few weeks afterwards he found numerous little caddis-worms crawling up the sides of the aquarium, apparently feeding upon *Confervæ*, and already there were indications that the cases they inhabited were *quadrangular* tubes. As time wore on, the cases became more decidedly four-sided, and he then supplied me with several examples, though they were still very small. The association of these cases with *Brachycentrus* is thus settled; but the matter ends here for the present, for during Mr. Boyd's temporary absence from home all disappeared, so that a description of the full-grown larva has yet to be made.

I have said that Dr. Hagen gives descriptions of several varieties of these cases, and I am cognizant of the fact that two forms exist in Britain, yet I only know of one British species of *Brachycentrus*. The case found by Mr. Parfitt no doubt pertains to *B. subnubilus*, for he took the insect commonly near Exeter. But, in August, 1866, I found in a wood near Scarborough, at a trickling spring sopped up by a thick growth of moss, several small coarsely-constructed 4-sided cases (amongst the moss), which I can scarcely believe to be made by the same species that formed the larger and more delicate Exeter case: neither was the locality one in which I should expect to find *B. subnubilus*. The history of these has therefore yet to be solved; and it may be possible that quadrangular cases are not confined to *Brachycentrus*.

There also remains a case in my collection found by Mr. Albert Müller in the Rhine at Basle, which is neither quadrangular nor cylindrical, a transverse section of it shewing two angular, and a third semi-circular, sides, though the materials and texture are similar to those of the Exeter case, and, I think, to Mr. Boyd's cases, allowing for the immature condition of these latter.—R. McLACHLAN, Lewisham: October 8th, 1872.

Obituary.

Prof. Wesmael.—Constantin Wesmael was born at Brussels in 1798, and died at St. Josse-ten-Noode (in Belgium) on the 25th October last. In him, Belgium has lost one of the most honoured of her now extensive band of Entomologists. His attention was principally devoted to *Hymenoptera*, and especially to the neglected parasitic families of that Order; but he also enriched entomological literature by memoirs on *Neuroptera*, *Coleoptera*, &c. Old age and infirmity had for some years prevented him from following his studies with the same energy as formerly, but there are few who have so disinterestedly devoted their lives to entomological pursuits, and to whose memory greater respect is due.

Robert Smith Edleston.—We have received information of the death, on 31st October last, of this gentleman, at his residence, Bowdon, Cheshire, at the age of 53 years, for the last 35 of which he had devoted his leisure to British Insects of all orders. His collection of British *Lepidoptera* is very extensive, and in fine preservation, and some time since he occupied himself almost entirely with the genus *Nepticula*, in which he made very valuable discoveries, having probably the best collection of its species in existence. Latterly he attended more to *Coleoptera*.

ENTOMOLOGICAL SOCIETY OF LONDON, 4th November, 1872.—Prof. WESTWOOD, M.A., F.L.S., President, in the Chair.

Mr. S. Stevens exhibited a *Pieris Daplidice* and six examples of *Argynnis Lathonia* captured by himself near Dover, last September; also *Sesia asiliformis*, *Chærocampa Celerio*, and *Deilophila livornica* from Brighton, and varieties of several other British *Lepidoptera*.

Mr. F. Smith exhibited a large collection of *Formicidæ* sent from Calcutta by Mr. Rothney, interesting, as shewing, in many cases, all the forms of each species. He also exhibited, and presented to the Society, the Minute-book of the Meetings of the Entomological Society existing in London from 1806 to 1822, in which were copied the Minutes of the pre-existing Aurelian Society. For this, a donation to Mr. Smith by Dr. J. E. Gray, the meeting passed a special vote of thanks.

Mr. Butler exhibited a remarkably perfect impression of the wing of a fossil butterfly (allied to the existing genus *Caligo*) in the Stonesfield slate.

Mr. Davis exhibited a large number of finely preserved larvæ of various insects.

Prof. Westwood remarked on the manner in which the common gnat (all females) had infested certain rooms in his house during the autumn. Although carefully destroyed each day, they were always replaced by others, notwithstanding that both doors and windows were shut.

Mr. Müller read notes on the habits of *Ozognathus cornutus*, Lec., a beetle allied to *Anobium*, which he had bred in numbers from a large woody Californian oak-gall, sent to him by Mr. Riley.

The Rev. R. P. Murray sent notes on variations of neuration in *Papilionidæ*.

Mr. Dunning read notes on *Atropos* and *Clothilla* with reference to Mr. W. A. Lewis's strictures on Dr. Hagen, pointing out that the English critic had himself been guilty of most egregious blunders.

A further portion of the proposed general Catalogue of British Insects comprising the *Ichneumonidæ*, *Braconidæ*, &c., compiled by the Rev. T. A. Marshall, was announced as published, and notes thereon by Mr. Marshall were read.

INSTRUCTIONS FOR THE COLLECTION AND PRESERVATION OF NEUROPTEROUS INSECTS.

BY ROBERT M'LACHLAN, F.L.S.

(continued from page 104).

SPECIAL INSTRUCTIONS.

Dragon-flies (Libellulidæ).

I commence the special portion of these 'Instructions' by a consideration of the *Libellulidæ* (using the term in its broad sense), partly because they are the most familiar Neuropterous insects, and also because this division of the subject requires to be rather more detailed than will be necessary in most of those that follow; the sequence of the groups being a matter of little consequence.

The larger species (*Libellula*, *Æschna*, *Anax*, &c.) force themselves upon one's notice by their bold and fearless flight when engaged in 'hawking' in the bright sunshine. Some also (e.g. *Æschna grandis*) delight in the long twilight of a fine autumn evening; but it is useless to expect to see dragon-flies at large in dull weather; they may then be occasionally found at rest, and picked up with the fingers. As water-loving insects *par excellence*, the vicinity of that element is of course the most likely situation in which to seek them. But many carry on *their* collecting operations far from water, and broad heathy commons, or shady lanes (according to the species), are often enlivened by the presence of these tyrants of the insect-race. Boggy moors, treacherous to the footsteps of the too bold entomologist, and rocky mountainsides, are peculiarly favourable localities. Never *chase* a large dragon-fly; such a proceeding is useless 'waste of tissue,' to say nothing of the chance of sinking to the middle in a bog, or coming violently to grief over herbage-hidden rocks and cavities. When one is seen frequenting a certain spot, wait till some tempting prey bring the pursuer to within reach, then, by a dexterous stroke of the net, secure it. Many species shew especial predilection for even a particular twig, and although they may make long and varied excursions, they will return again and again: so be not too precipitate, remembering that if one be struck but not captured, or sufficiently scared, it will go away at a pace defying pursuit, and not again put in an appearance. Mr. Wallace, in his 'Malay Archipelago,' relates that at one of the islands (Lombock) visited, and where large insects are used as food, the natives catch dragon-flies by means of limed twigs, the habit of haunting particular spots being no doubt taken advantage of. I have frequently, when out walking without a net, knocked down the large species with my stick, and specimens so caught often sustain little or

no injury. The smaller slender-bodied species (*Agrion*, *Calopteryx*, &c.) can be captured with comparative ease, though even with them one must not rely upon obtaining a second stroke if the first miss its object. These frequent the sides of running brooks, reedy ponds (especially those formed by the 'backwaters' of rivers, which are often isolated in summer, though connected with the stream in the floods of winter), and weedy ditches. If there be a hedge-row in the vicinity, so much the better, as they will leave the margins of the pond or ditch for the sheltered side of the hedge, where they may be seen flying in swarms. Even the open expanse of a flowery meadow far from water, and the rides in woods, are often haunted by myriads of *Agrions*. Scarcely anything more beautiful exists in nature than a stream over which are flying our native species of *Calopteryx*; but the sight of a forest rivulet frequented by some of the brilliant exotic species must be a treat never to be forgotten.

It must be borne in mind that dragon-flies are long-lived insects, and, in some cases, several days elapse after hatching before the colours are fully matured: thus the male of *Libellula depressa* only obtains its pulverulent blue colour by slow degrees; for some days it is yellow, like the female; in a collection, it is always desirable to have specimens thus comparatively immature. *Very recently developed* examples are detected by the limp consistency of all their parts, and especially by the wings, which, when the insect is feebly flying, look as if (to use the apt expression of another observer) they had been dipped in mucilage; for the sake of understanding a species in all its conditions, it is even advisable to retain some of these.

With regard to the best means of conveying the insects home when caught, I can scarcely do better than quote the words of Dr. Hagen in the *Entom. Weekly Intellig.*, vol. iv, p. 88. He says:—

"In collecting the *Libellulæ*, I take a number of strips of paper doubled in two, "and place the wings of a caught specimen between the folds, and, with a pin at each "side of the wings, fasten it into my collecting box, without pinning the insect "itself: thus, in a small box, you may pack many in a small compass, taking care "not to put them within reach of each other's jaws."

Or the insects may be killed or stupified by a sharp pinch, and then be temporarily pinned in the box through the side of the thorax, the wings being kept down by a simple paper brace pinned at each end. A more elaborate plan is that explained by M. Blisson in the '*Annales de la Soc. Ent. de France*' for 1840, who recommended that the insect when caught be placed in a sort of paper shroud, covering almost the whole insect excepting the head. With the slender-bodied small species it is, I think, better to pin at once in the ordinary manner between

the wings: but, in all cases, emphatically regard the instructions not to put them within reach of each other's jaws; even specimens thought to be dead may revive, and then, upon arriving home, the results of a day's labour present no better appearance than jagged wings and mutilated bodies. Though, apparently, so insensible to pain, and tenacious of life, they are, in reality, easily killed, and Dr. Hagen even asserts that they die rapidly by simply placing the box close to a window in the hot sunshine: this I have not tried.

I now come to the most important parts of the subject: firstly, the preservation of them in collections without breakage; secondly, the preservation of the colours. On these points much has been written; and I will endeavour to combine the advice of previous writers with my own experience. The body of a dry dragon-fly is extremely liable to dislocation at any segmental division, the compound consolidated thorax being in reality the only part that will remain entire with any degree of certainty. The head is attached very slightly, yet this will often move round, almost as if on a pivot, without becoming detached: however, if it come off, it can easily be re-attached by a strong solution of shell-lac in spirits of wine; and some may even prefer to voluntarily behead all their specimens, and unite again with this or some similar liquid cement. Taking the smaller species (*Agrioidae*, &c.) first, I do not recommend, with them, any system of dis-embowelling, believing, from experience, that the preservation of the colours is not furthered thereby. Dr. Hagen ('Intelligencer,' vol. ii, p. 82, and vol. iv, p. 88) advises that a needle with thread be introduced into the under-side of the thorax, and brought out *before* the termination of the body (mark especially, *before* the termination, so as not to injure the appendages of the apex), the thread being drawn backwards and forwards to remove some portion of the viscera, and a clean thread then inserted and cut off at each end. Baron de Selys-Longchamps, whose experience is probably greater than that of any other living entomologist in these matters, prefers ('Revue des Odonates,' p. 378) to use no endeavours to extract the viscera in the slender species. In this I agree with him, and explain here the plan I adopt. Having provided myself with some stout horse-hairs, I cut them up into short lengths; one of these lengths is inserted in the under portion of the thorax of the insect, and is gently pushed down until it reaches the extremity of the abdomen, but it is not pushed *through*, and, by this means, the anal organs can suffer no injury; the thoracic end is then cut off, and the specimen is thus rendered incapable of breakage. I conceive horsehair, when it can be obtained, to be

infinitely preferable to any other substance, if only on account of its elasticity. The larger species require a more elaborate treatment, and, as a rule, it is certainly desirable to eviscerate at least the abdominal portion of the body. To do this, take a fine-pointed pair of scissors, and cut an incision along the membranous longitudinal suture of the under surface; the inside can then be extracted with a pen-knife, and a little brush-pad of cotton wool may be used to wipe out the remaining moisture. Then fill in the interior with clean cotton wool, a small quantity will suffice; and it is better to err on the side of too little than of too much; for, in the latter case, the body assumes an unnaturally dropsical appearance when dry. I prefer *white* wool in all cases. Many elaborate plans of using differently coloured paper, made into little rolls, or coloured wools adapted to the natural colour of the body, have been proposed, and some have gone so far as to attempt to imitate the markings by designs painted on the inserted paper (!). All this I look upon as unnecessary and, to a considerable extent, more than useless, trouble. It is in vain to attempt to reproduce the natural tints by artificial means; if the eviscerating process be performed with sufficient care, some, at least, of the original beauty will remain; more than this cannot be obtained, and should not be expected. Species of medium size may be partially cleansed by means of a piece of dry grass-stem drawn backwards and forwards (after the manner before noticed when speaking of the *Agrionidæ*), and breakage prevented by a clean piece of the same stem (or some similar substance) inserted permanently: decidedly the best material is the straight wire-like vegetable substance so extensively used in making mud-brooms; this possesses almost the elasticity of horse-hair, and is stout enough for even the largest species.*

In the 'Intelligencer,' vol. ii, p. 82 (see also vol. iv, p. 87), Dr. Hagen very justly remarks that:—"If a species be sufficiently common to allow of many specimens being taken, we are sure to find that some of them keep their colours well without any preparation." This I can emphatically confirm: I have, *inter alia*, large British *Æschneæ* which now, after several years, have their colours and intricate markings almost as fresh as when first caught, and this without the slightest preparation. But he goes on to say:—"These are specimens which had not long escaped from the pupa state, and had not yet commenced their ravenous career; their empty intestinal canal containing no foul matter." The last part of this sentence is perfectly correct, for it is the decomposition of the partially-digested food (assisted in

* This material is known in commerce as 'Bass' or 'Piassaba.' Mr. Jackson, of the Kew Museum, informs me that it is the produce of two species of Brazilian plants—*Attalea funifera* and *Leopoldinia Piassaba*.—R. McL.

the ♀ also by the ova) that destroys the beauty of the specimens, and, at first, I accepted the explanation in all its details. Further consideration, however, induces me now to differ from him as to these specimens being recently developed. All dragon-flies take from two days to a fortnight (according to the species) to become fully mature; yet they eat in the meantime, and the individuals that do not change *are* usually fully mature. I look, therefore, to another explanation. Dr. Hagen hints that specimens taken very early in the morning are the most likely to retain their colours; this I consider not owing to the fact that they are recently developed, and have not fed at all, but that the food of the preceding day has been digested and passed away: and I should look to even more certain results in the case of specimens taken during the first incoming of fine weather after an uninterrupted series of gloomy and wet days.

I conclude the already too lengthy remarks in this chapter by a few hints to *foreign* collectors. If the specimens be pinned when caught, each should have a grass stem, or some analogous substance, run into the body as mentioned above, taking especial care that one end be *in the thorax*; otherwise it is impossible to send over a collection which shall arrive in good condition, and one large body becoming detached will play havoc with the others. But almost all can be sent in squares of paper folded into triangular envelopes, one in each: if the body then become broken, the pieces can be fitted together with certainty. They should not be placed in these envelopes *until dry*, that is, until after they have been for some time braced down as recommended for the field collecting box, otherwise the pressure alters the form, and decomposition sets in under very unfavourable conditions, so far as the colours are concerned.

Dry dragon-flies relax very easily, and need not remain upon the setting-board for anything like the time required for smaller and more delicate insects. When the bodies are broken, they can easily be reunited by using horsehair (or something stouter for large species), inserted into the dislocated portions, taking the precaution to smear the substance with the shell-lac cement, and the pin will also require some of this cement on the portion that will remain *in the thorax*, to keep it secure. Pins with the heads cut off, and wire, are not desirable mediums wherewith to connect broken fragments, as they become rusty, and eventually destroy the specimen. Baron De Selys even advises that the abdomens of all dry specimens should be voluntarily detached, and then re-connected. A solution of phenic (carbolic) acid in alcohol should be applied to each specimen to destroy mites or mould, and as a future preservative. The wool used for stuffing fresh specimens should also be saturated with some of this solution.

White-Ants (Termitidæ).

Excepting in the extreme south, Europe is happily free from these pests, and I have never yet seen any species alive. Their habits are, of course, gregarious; and Mr. Bates' 'Naturalist on the Amazons' gives a general idea that will apply to any part of the world where they occur. Each species is well known to have many separate forms (soldier, worker, &c.), and all these should be obtained from one 'termitarium.' Possibly the best plan is to send home all the forms in spirits; or, if the winged examples be pinned, they should certainly not be expanded, for the following reasons. At certain seasons these shed their wings voluntarily, and this is done by these organs becoming detached at a transverse suture close to the thorax; and specimens at all times are liable to become thus dislocated, and more especially when the wings are expanded. If anything *could* induce me to relax my opposition to 'carding,' it would be in the case of winged white ants, for I know not how to keep them intact. The gravid female, with her enormously distended abdomen, must be placed in spirits.

The small allied family *Embiidæ* is rare, and the species are not numerous. It appears to be certain that the varied conditions existing in *Termes* are not found here, but of some species the larvæ only are yet known; these occur under stones in sandy districts. M. Lucas states that the winged (or perfect) form of an Algerian species was seen running up and down the stems of low herbage, without attempting to fly when taken. The wings are not deciduous, and may be expanded in the usual way.

Psocidæ.

These, for the most part minute, insects are to be met with on the trunks of trees, old palings, &c., as well as by beating the boughs over the net; and, for this latter operation, firs, larches, yews, and, in fact, all conifers, are particularly favourable. Where a species occurs it is usually abundant, for they are more or less gregarious: a few exotic species are of comparatively large size, but very few exceed half-an-inch in expanse of wings, and the majority are very much smaller. They are often imported with merchandize in ships; some small species (I speak here of the winged genera) naturally inhabit houses and warehouses. All run with extreme rapidity, and seldom use their wings: when captured, they should be placed in small pill-boxes, or (better still) in small glass tubes. Owing to their small size, only few will satisfactorily bear a long pin sufficiently strong, and for most it is necessary (if the long-pin system be adopted) to use

the oblong pieces of pith, noticed in my general observations, for the purpose of mounting them. The wings should be expanded in the usual way on small setting-boards; but in the case of very small forms, the action of pinning will open the wings sufficiently to admit of the requisite examination. Very little is yet known of them, excepting European forms, though the exotic species are certainly *very* numerous, and are much needed: some are of extreme beauty, and sometimes even furnished with semi-metallic scales as in small moths. This is possibly the *most* neglected family of that neglected order *Neuroptera*, and the known species probably scarcely represent one hundredth part of those that exist:—*verbum sap.*!

Of the apterous (or semi-apterous) species (*Atropos*, *Clothilla*, &c.) it may be truly said that most entomologists need instructions as to how to get permanently rid of, rather than how to procure, them. They are everywhere, and always making themselves obnoxious by destroying the peace of mind—and the collections—of the Naturalist. One species, at least, is known to inhabit ants' nests, and many more may yet be discovered as ant-guests. Any permanent mode of preserving them as specimens is difficult. They may be carded—unsatisfactory!; mounted on mica—also unsatisfactory!; or mounted as microscopic slides—perhaps the most satisfactory. Collectors should try to get rid of the notion (still fostered by some) that these little pests are only larval forms of winged insects. Two species (one *Atropos*, one *Clothilla*) are common in all houses, and with them, no doubt, the larvæ of minute winged species that frequent human habitations; but the structure of these latter would detect them. It may here be well to remark, that there is a suspicion, not yet sufficiently grounded, that some winged tree-frequenting species have apterous conditions allied to what is found in *Termes*; it is certain there are forms with imperfectly developed wings, and I think these are always females.

May-flies (Ephemeridæ).

Insects more attended to by the angler than by the entomologist, and upon which much poetry has been written on the taken-for-granted supposition that the romance of their few hours' existence is founded on fact. Possibly, however, some few live only a day or two as perfect insects; but these are exceptions. The neighbourhood of water, especially running water, is sure to produce multitudes of May-flies. The males of some large species (*Ephemera*) dance in swarms over the stream; whereas, the females are only to be found

among the herbage, or taking short flights. The smaller species fly in calm weather more steadily and very slowly. Some are so abundant as to be used for manure, and even for feeding pigs (!), on continental rivers; and we are even told of shrubs being bent down by the multitudes of an American species. Mr. Eaton has done good service by his recent Monograph of the family, but very little is yet known of extra-European forms. The sexes generally differ much in appearance, and, owing to the fact of the final moulting being performed after the winged condition has been assumed, it is thus necessary to have four distinct series of each species, as Dr. Hagen observed in the 'Entomologist's Annual' (1863, p. 6). When pinned, it is a matter of indifference as to whether they be 'set' or not; the caudal setæ are very difficult to retain entire, but this is best facilitated by pinning high, and not allowing these setæ to come in contact with the drawer or box when dry. The true forms cannot be properly retained in dry specimens, and Mr. Eaton (see p. 5) advises that all be preserved moist: altogether they are unsatisfactory insects from a collector's point of view, and none suffer so much from the attacks of the apterous *Psocidæ*.

Stone-flies (Perlidae).

Always found in the vicinity of water, and, as a rule, running water, the more rapid the better. Mountain streams are especially favourable; and the larger species may be found among the herbage on the banks, or more readily under the large stones (sometimes partially in the water) that lie on the edges of the burns. The species of the genus *Pteronarcys* (which is almost peculiar to North America) frequent the spray of waterfalls, and are furnished in the perfect state with external respiratory filaments, showing that their habits are even then so aquatic as to necessitate the extraction of air from water. The large species fly but little, yet are difficult to capture, owing to their rapid sliding motion when alarmed; the smaller forms (*Leuctra*, *Nemoura*, &c.) fly in calm weather slowly, but moderately high, over the water. Some species (*Nemoura*) inhabit muddy ditches containing very little water, but the majority are emphatically torrent-loving insects. All may be pinned and set out in the usual way, care being taken not to break the caudal setæ of those larger forms that possess these organs; and it is also necessary to be careful in spreading out the folded and delicate anal portion of the hind-wings: in re-setting relaxed specimens, this portion of the wing is extremely liable to get torn. The whole family has no great amount of beauty to recommend it, but many of the forms are extremely curious, and comparatively

little is yet known of them, the separation of the species being very difficult; and, indeed, it is almost imperative that for this purpose some of each should be placed in spirits or glycerine. They are no doubt most numerous in northern latitudes; but the streams of tropical mountains are certain to produce them in numbers. Few are known from the Southern Hemisphere, yet there are some curious forms in Australia and New Zealand.

With this family I conclude what is termed the Pseudo-Neuropterous division, viz., those which undergo an imperfect metamorphosis.

(To be continued).

REMARKS ON MR. BARRETT'S "NOTES ON BRITISH *TORTRICES*"
(ENT. MO. MAG., VOL. IX, PP. 124—130).

BY C. S. GREGSON.

Amphysa Gerningana, S. V.—This species is abundant at the end of June and in July, at Risley Moss, but local there on dry corners where the turf has been taken away; it is also plentiful at Bidston Hill, but again local: in both places, *Potentilla tormentilla* grows freely (where we take it) amongst the heather. I have bred it from flower-heads of sea-pink (*Statice armeria*) collected on the rocks at Isle of Man, away from heather, and append description of its larva—

Length half an inch, slender, slightly wrinkled; head and neck reddish orange-yellow, with a few darkish markings thereon; the next five or six segments are dull darkish pea-green, the last four or five segments dull ochreous-olive, anal segment having a distinct black oval ring upon it, out of which spring three or four long white spines, the segmental spots small and indistinct.

Larvæ collected at the end of May and early in June on the coast at the Isle of Man, feeding in the flower-heads of the sea-pink (*Statice armeria*), drawing two heads together. In confinement making up therein, and appearing in the perfect state early in July. I have also bred it (July 9th) from larvæ collected in June on *Potentilla tormentilla*.

Amphysa prodromana, Hüb.—Doubleday gives *Walker*i (Curtis) as his synonym for this species, not *Walkerana*. The species is plentiful on the edges of moors and in lanes leading to mosses and heaths, in Lancashire and Westmoreland, but I never knew it to extend far from the edges thereof. It certainly does not feed upon either sallow or willow; it is a low-growing plant feeder, and appears in April. I have only taken it where *Potentilla tormentilla* grows.* in

* *Salix fusca* is a low-growing plant.—EDS.

Hypermercia augustana, Wilk., the *H. augustana*, Hüb., *cruciana*, Haw., Linn. (?), *viminana*, Guen. var. (of Doubleday's Synonymic Catalogue).—It is, indeed, a most variable species; but that the "basal patch" seems always to be dusky greyish is unintelligible to me, with a series of over 40 specimens before me, all bred from willow and alder growing on our coast: there are not two alike; commencing with light drab unicolorous specimens, they run down to dark rich reds of various shades,—some specimens having acute, some rounded wings; some with a decided round dark patch or spot near the apex; some having the outer ordinary dark markings hardly developed; whilst others have a streaky dark mark beyond the triangular light costal mark; and in one or two, the rich red of the upper-wings extends across the thorax. I breed great numbers of this species: collecting the larvæ in May and June in the terminal shoots of dwarf willow and alders, when I am in want of the larvæ of *Ephippiphora ephippiana*, &c.; ill-fed specimens are very small, well-fed ones large, but every degree of colour and markings pervades the broods bred here.

Hypermercia augustana, Hüb.—Of this I know not anything; but, if so disposed, I should have little difficulty in picking out from my series of specimens of *cruciana*, Linn., some which accord wonderfully well with the description of this species.

Antithesia (Steph.) *prælongana*, Gn. = *sororculana*, Zett.—We shall have to adopt Zetterstedt's name for this species. I bred it from larvæ collected early in June, the perfect insect appearing at the end of June; the larvæ fed on young birch trees growing on the banks of Lake Windermere.

Antithesia cynosbatella, Linn.—This species feeds in the buds and between united leaves of cherry trees, often defoliating the trees, in May.

Antithesia dimidiana, Sodoffsky, Bull. Moscou, 1830, I shall adopt.—Like Mr. Chapman, I have bred this from *Myrica gale*; I gathered the larvæ in May and June (first week), and the moths appeared at the end of the month. Risley Moss, Formby Moss, Belle Grange, Windermere. Bred specimens are always of a rich rosy-colour.

Antithesia marginana, Haw.—Wilkinson is not far wrong when he says "a rare species, and not variable;" down here it is rare. When prospecting across from Belle Grange to Hawkshead in July, 1870, I met with this species in plenty, flying with scores of *Emmelesia tericetaria*, Curtis; I may say I took hundreds of both species, yet I

hardly think anybody will call the latter a plentiful species. No species is really rare if you know *when* and *where* and *how* to look for it. My specimens were taken on a swampy part of the open forest land, hitherto untrodden by the feet of entomologists, where little else than tufts of cotton grass (*Eriophorum*) and small stunted heather and the asphodel grew; it did not occur on the drier parts of the moor, neither did it vary at all, except as all moths are liable to do in quality and size or sexually. All my specimens were tinged with pink when alive. I never before took it, except singly.

Sideria achatana, S. V.—Touching rarity or abundance, Mr. Barrett tells us that this species “swarms sometimes” near Mr. Stainton’s residence: I have collected insects regularly in all sorts of places, principally north of Stafford, since 1826, but never saw a good or living specimen in the north; on the other hand, Mr. Stainton assures me he never had the pleasure of taking half-a-dozen *Antithesia marginana*.

Dichelia Grotiana, Fab.—Of this variable species, I have bred many forms, some of them being so like Mr. Barrett’s description of *D. gnomana*, Linn., that they have stood named var. *D. latiorana*; but as these were bred from what I took to be *Grotiana* larvæ, I only supposed, and only still suppose, them to be varieties of that species. Some years ago, Mr. S. Stevens wished me to think them different, but I was too dull to see it.

Rose Bank, Fletcher Grove, Liverpool:
November 2nd, 1872.

NOTES ON *TRICHOPTERYGIA*, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY THE REV. A. MATTHEWS, M.A.

MILLIDIUM TRISULCATUM, Aubé.

Examples of this species sometimes occur, in which the lateral sulci of the thorax are almost parallel to the medial. When I first observed specimens presenting this variation, I supposed that they would belong to *M. triramosum*, Mots., but a subsequent and very careful examination of a large series has convinced me that they are only a variety of *M. trisulcatum*. The type of *M. triramosum* which I received from the late Col. Motschoulsky is a much smaller and narrower insect, with the general surface of its head and thorax perfectly smooth, having no trace of the tubercular or rather alutaceous sculpture which is evident under a very high magnifying power in all specimens of *M. trisulcatum*.

PTILIUM CÆSUM, Erichs.

In 1870, Mr. G. R. Crotch took six specimens of a *Ptilium* in the Cambridgeshire fens, and which he kindly sent to me shortly after their capture; as he and I had previously taken *P. affine* in the same neighbourhood, and as at that time I had more work than I could well get through, I placed these insects among our reserves. In the spring of the present year, while examining these hoards, I came across the specimens in question, and was much pleased to discover that they all belonged to the *Pt. cæsum* of Erichson.

TRICHOPTERYX CARBONARIA, n. s.

L. c. $\frac{6}{15}$ lin. Oblonga, convexa, saturata, nigra, pilis brevibus flavis sat dense vestita, capite permagno, oculis modicis; pronoto capite latiori, vix longiori, pone medium latissimo, lateribus valde rotundatis et ad basim contractis, tuberculis minutis, ordinibus sinuatis dispositis, interstitiisque reticulatis confertim ornato, margine basali valde depressa et fortiter sinuata, angulis valde productis, acutis; elytris brevibus, quadratis, capite atque pronoto haud longioribus aut latioribus, ad media latissimis, lateribus leviter rotundatis, apicibus latis, fere rectis, confertissime distincte et profunde asperatis; abdomine sat longe exserto; pedibus atque antennis robustis, sat obscure flavis.

Head very large and broad, covered with minute tubercles in straight rows, with the interstices finely reticulated; eyes large, not prominent; antennæ moderate, slender, obscure yellow.

Thorax moderate, wider but scarcely longer than the head, widest behind the middle, with its sides much rounded and slightly margined, contracted towards the base, covered with minute, but distinct, tubercles arranged in wavy rows, with the interstices reticulate and shining, the basal margin much depressed and rather strongly sinuated, the posterior angles much produced and acute.

Scutellum rather large, triangular, closely and deeply asperate.

Elytra short, quadrate, narrower but not longer than the head and thorax, widest near the middle, with the sides slightly rounded, deeply and very closely asperate, with their apex paler, very broad and straight, the extreme edge white.

Abdomen considerably exserted, rather obtuse, with its apex obsoletely tridentate.

Legs robust, dark yellow, with the femora obscure.

Under-parts black, with the mouth and coxæ piceous.

This insect is allied to *T. picicornis*, Mann., but differs from that species in its paler and more slender antennæ, of which the 8th joint is linear, and not incrassate, and also in the totally different sculpture of its thorax and elytra. The only example which I have seen, I found

in Thoresby Park, in Nottinghamshire, in August, 1868; since then I have waited in vain for the occurrence of other specimens, but have now determined to separate and describe it as a distinct species on the strength of the very essential characters which I have pointed out.

TRICHOPTERYX LÆTITÆ, n. s.

L. c. $\frac{1}{8}$ lin. *Oblongo-ovalis, modice convexa, nigra, haud nitida, pilis pallidis dense vestita, capite modico; pronoto sat parvo, postice dilatato, ad basim latissimo, tuberculis minutis, ordinibus transversis irregulariter dispositis, interstitiisque profunde et confertim reticulatis sat dense ornato, margine basali sinuata, angulis acutis valde productis; elytris plus minusve attenuatis, capite atque pronoto vix longioribus aut latioribus, confertim asperatis, lateribus fere rectis, apicibus rotundatis, dilutioribus; pedibus obscure flavis, antennis piceo-nigris.*

Head moderate, triangularly produced in front, sparingly covered with minute tubercles, the interstices shining; eyes large and prominent; antennæ short and slender, pitchy-black; palpi pitchy-black.

Thorax rather short, not very convex, rather longer than the head, dilated posteriorly, widest at the base, with the sides moderately rounded and margined, covered with minute tubercles closely arranged in transverse wavy rows, with the interstices closely and rather deeply reticulate, the basal margin rather strongly sinuated, with its angles acute and much produced, the extreme edge of the sides and base pale.

Scutellum large, triangular, rather acuminate, closely, but not deeply, asperate.

Elytra oblong, more or less strongly attenuated towards the apex, scarcely longer or wider than the head and thorax, moderately but closely asperate in transverse rows, with the sides nearly straight, the apex much rounded, paler, with its extreme edge white.

Abdomen much exserted, obtusely conic, with the posterior margin of each segment paler, and the apical segment distinctly but obtusely tridentate.

Legs moderate, dusky yellow, with the basal joint of the anterior tarsi slightly dilated.

Under-parts black, with the mouth and coxæ piceous; femora dusky.

Allied to *T. fascicularis*, Herbst, but differs from that species in its smaller and more depressed thorax, shorter and pitchy-black antennæ, and in its conspicuously smaller size. It was found in large numbers, unmixed with any other form, by my sister, Miss L. Matthews (after whom I have named the species), in Belgium, near Spa, in August last.

Gumley: November, 1872.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 4).

BY F. BATES.

ALEGORIA SALLEI, *sp. n.*

Glossy black; palpi pitchy-red, the labials sometimes brighter red: mentum with the front angles strongly rounded, punctured (but not closely), an oblong depression at each side near the margin; last joint of maxillary palpi moderately securiform; antennæ of the same form as in *A. dilatata*, black, the outer joints dusky (sometimes slightly rufescent); labrum sparingly and minutely punctured, the anterior angles strongly rounded, the apex broadly notched in the middle; head with a broad transverse depression on the front, the epistomal suture well marked at each side by a very fine deep line; a few well marked punctures on the front and neck, rest of head sparingly and minutely punctured; the antennary orbits are prominent in front of the eyes, giving to the head, at the sides, the square angular appearance seen in *A. dilatata*; prothorax one-fifth wider than long, sides gradually (and slightly sinuously) rounded to five-sixths their length, thence somewhat abruptly contracted and sub-parallel to the hind angles, which are slightly outwardly directed; apex sinuous, the fore angles prominent; base sinuous; base and sides somewhat strongly margined and grooved, apex margined only to one-third the width at each side; laterally, at each side the disc, are two or three shallow rounded foveæ, and there is also an impression at each side the middle of the base; minutely punctured at the sides and angles, the punctuation at the front angles the strongest; scutellum with a transverse depression on the disc, impunctate; elytra elongate, sub-parallel; base slightly sinuous, humeral angles prominent, rounded; punctate-striate, intervals flat on the disc, convex at the sides and apex, impunctate; under-side deep black, less shining than the upper; flanks of the prothorax faintly rugose, impunctate; prosternal process longitudinally convex, scarcely margined, faintly punctate, the extremity obtuse; legs shining black, feebly punctate; anterior femora rather strongly arched, scarcely more robust (but less compressed) than the four posterior; anterior tibiæ elongate, sinuous, apically inwardly curved and produced, keeled on the upper-face, the apical half outwardly curvedly expanded and hollowed out superiorly for the reception of the tarsi in repose, the under-side of this expansion is thickly beset with short conical teeth; middle and hind tibiæ shorter, sub-equal, thickened at the extremity (which is also closely denticulate at the outer edge and on the under-side), the apex inwardly produced: tarsi short, massive; first joint of the posterior not longer than the last; mesosternum somewhat abruptly declivous in front; intercoxal process broadly triangular at apex.

Long. corp. $7\frac{1}{2}$ lin.

Hab.: Mexico; three examples.

In this and the following two species of *Alegoria* there is a considerable departure from the generic type; indeed, some of the characters (those of the form of the anterior tibiæ more especially in the present species, and of the last joint of the maxillary palpi, form of prothorax, antennæ, mesosternum, and intercoxal process, in the

two following) are so strong, that, in a group less subject to extraordinary variation than this to which *Alegoria* belongs (*Ulomides**), they would necessitate the creation of two new genera.

ALEGORIA QUADRATICOLLIS, *sp. n.*

Oblong, sub-parallel, depressed; glossy black, the antennæ, tarsi, labrum and maxillary palpi dark reddish-brown, the labials bright red; mentum strongly transverse, broadly emarginate in front, nearly as broad at base as at apex, sides strongly and sub-angularly rounded, coarsely (but not closely) punctured, sulcate down the median line; last joint of maxillary palpi elongate, ovoid, and truncate at tip; labrum broadly (almost arcuately) rounded in front, the anterior margin entire, rather coarsely but sparingly punctured; head with a large transversely oval depression on the front (but more posteriorly placed, and more nearly between the eyes, than the similar depression in *A. Sallei*), with another, somewhat angular, on the epistoma, at each side of its emargination; antennary orbits much less prominent in front of the eyes, and more oblique, than in *A. dilatata*, so that the head, at the sides, is less parallel and angular; epistoma more contracted in front, and the emargination (or notch) narrower and deeper than in *A. dilatata* or *Sallei*; epistomal suture obsolete; sparingly and finely punctured; the rest of the head—except the neck which is strongly rugose-punctate—moderately and not closely punctured; antennæ with joint 2 large, sub-globular, 3 a little longer than 4, 5, or 6, and all (*i.e.* 3—6) sub-cylindrical, 7—10 gradually broader, sub-triangular, moderately perfoliate, 11 large, ovoid†; prothorax sub-quadrate, depressed, wider than long, a little narrowed anteriorly, slightly sinuously rounded at the sides, sinuously emarginate in front, rather strongly sinuate at the base; anterior angles somewhat prominent, rounded; hind angles obtuse; sides and base margined (but not grooved as in *A. Sallei*), anteriorly the border is only faintly margined for one-third the width at each side; finely and not closely—especially on the disc—punctured; there are three impressions at the base; scutellum rather large and having three or four transverse punctures on the disc; elytra oblong, slightly widest behind the middle, strongly depressed, sides somewhat sinuously and broadly margined; base strongly sinuous, humeral angle prominent; rather finely punctate-striate, the punctures regular and rounded; intervals flat, sparingly and finely punctured, and slightly (when viewed obliquely) transversely rugulose; legs shining black; anterior femora strongly compressed, sub-claviform, slightly more robust than the four posterior; the tibiæ are similar in form to those of *A. dilatata*, but less robust, and the denticulations at the outer edge of the four anterior are much feebler and more regularly formed in this species; flanks of prothorax faintly longitudinally wrinkled; meso-

* In the genus *Uloa*, the palpi, mentum, &c., are well known to vary considerably in form, &c., not only in the different species, but also in the sexes of the same species, and the character offered by the epipleural fold, which may ordinarily be relied upon, is here inconstant, it being (so far as my experience goes, more or less abruptly terminated before the apex of the elytra in all the species from the Old World and from North America, whilst in all those from Central and South America it is more or less broadly continued to the apical extremity: the hind tarsi also follow the same rule, all those species coming from Central and South America have the 1st joint constantly shorter than the last, and all those from the Old World and from North America have the 1st joint constantly equal to—in some species longer than—the last.—F. B.

† In *A. dilatata* the transverse joints are strongly perfoliate, and more or less obliquely truncated at each side the antennal axis, and the last joint is not ovoid; in some examples the antennæ are slightly distorted, with joints 6, 7, or 6, 7, 8 produced within, and somewhat pointed: one sees a similar thing in ♂ of *Uloa orientalis*, &c.—F. B.

sternum vertical in front, profoundly and clearly excavated into form of V; prosternal process prominent, lanciform, longitudinally convex, not margined, finely punctured; intercoxal process narrow, tapering, the apex pointed; first joint of posterior tarsi longer than the last.

Long. corp. $4\frac{1}{2}$ lin.

Hab.: Venezuela; one example.

ALEGORIA PARALLELA, *sp. n.*

Smaller, narrower, much less depressed, and less glossy than the preceding; antennæ, palpi and tarsi clear red, legs and labrum chestnut-red; the mentum is less transverse than in the preceding species, the middle of the fore margin is notched, the fore angles are strongly rounded, and the sides more narrowed to the base, the punctuation is coarser and sparser, and it is not furrowed (or sulcate) down the median line; the last joint of the maxillary palpi is of the same form as in the preceding, *i. e.*, elongate, ovoid, and truncate at tip; the labrum is broadly, and almost squarely, truncated in front; the epistoma and antennary orbits are of the same form as in the preceding; the outer (terminal) five joints of the antennæ are of the same form as in *A. quadraticollis*, but joint 6 is much larger and wider,* joint 3 longer and somewhat obconic, and joint 2 smaller and cylindrical; the elevated ridge between the eyes (on the crown) is much less marked than in the preceding species, consequently the depression on the front is faint or almost obsolete, that at each side the epistoma is equally strongly marked; the neck is much less coarsely rugose-punctate; the prothorax in the present species is a little squarer, consequent on the sides anteriorly being somewhat less contracted, the emargination in front is shallow and less sinuous, and the anterior angles less prominent and more depressed, the base is equally strongly sinuous, and has the three impressions as in the preceding; the punctuation—especially at the sides—is sparser; the elytra are more parallel (*i. e.*, not, or scarcely perceptibly, expanded behind the middle), somewhat convex (the lateral margins not being visible when the insect is looked at from above), the punctures in the striæ are less rounded and regular; the legs, pro- and mesosternum, and intercoxal process are all formed as in the preceding species.

Long. corp. $3\frac{3}{4}$ lin.

Hab.: Brazils; one example.

It is possible this may be the "second species" mentioned by Lacordaire (Gen. Col., v, p. 326), and it is more than probable that it will eventually be linked to the preceding as but an extreme variety.

Corrections.—In No. 2, p. 133, in my description of *Epiphysa ovata*, &c., I have written of the *prosternum* it has "the *apical* two-thirds," &c., it should be the *posterior* two-thirds, &c. On page 134, I have written the prosternal groove *anteriorly* is quite smooth, &c., it should be the prosternal groove *posteriorly* is quite smooth, &c. I shall always describe as the hind or posterior portion of the *prosternum* and *prosternal process* that portion nearest to, and facing, the *mesosternum*.

* The present species may be said to have a gradually widening club of six joints, and *quadraticollis* one of five joints.—F. B.

In No. 3,

On p. 150, line 8, *for* "in", *read* "on".

„ 16, " "elytra", *read* "elytron".

„ 25, „ "contracted", *read* "compacted".

„ 35, „ "near the mesosternum", *read* "behind".

„ „ 151, „ 33, „ "species", *read* "genus".

Leicester: December, 1872.

A DESCRIPTIVE LIST OF *EROTYLIDÆ* COLLECTED BY GEO. LEWIS, Esq.,
IN JAPAN.

BY G. R. CROTCH, M. A.

[WITH ADDENDA TO THE GENUS *LANGURIA* BY E. W. JANSON AND C. O. WATERHOUSE].

FAM. *EROTYLIDÆ*.

Sub-fam. I. *LANGURIIDES*.

Genus *LANGURIA*, Latr.

L. LEWISII, *sp. n.*

Elongata, *postice paulo attenuata*, *ænea*, *nitidissima*; *capite parce evidenter punctato*; *thorace parcissime obsolete punctato*, *latitudine dimidio longiore*, *angulis anticis deflexis*, *rotundatis*, *posticis productis*, *acutis*, *basi tenue marginato*, *ante scutellum sat profunde impresso*, *utrinque striâ obliquâ divergenti impresso*; *elytris punctato-striatis*, *interstitiis leviter coriaceis*; *corpore subtus rufo-ferrugineo*. *L. c.* 4—5 lin.

Kawachi, in Nipon; rather abundant by beating.

Eyes finely granulated, antennæ with the 3rd joint longer than 4th, apparently 4-jointed club, elytra without an epipleural fold; sutural stria not punctate, obsolete near the base.

L. UNICOLOR, *Mots.*, *Bull. Mosc.*, xxxix, p. 178 (1866).

Statura L. Menetriesii sed duplo latior. *Elongata*, *antice posticeque attenuata*, *convexa*, *nitida*, *sub-viridiænea*, *corpore subtus ore pedibusque plus minusve brunneis*, *antennis nigris*; *capite punctulato*; *thorace sub-transverso-trapezoidale*, *subtiliter punctato*, *marginato*, *dorso utrinque foveolato*; *elytris thorace paulo latioribus*, *punctato-striatis*, *interstitiis fere planis*. *L. c.* 1½ lin.

L. NIGRIPES, *sp. n.*

Elongata, *postice angustata*, *læte ferruginea*, *nitida*; *antennis (articulis 1—2 rufis) pedibusque nigris*, *femoribus basi anguste rufis*; *capite parce punctato*; *thorace antice dilatato*, *parce fortiter punctato*, *lateribus*

rotundatis, marginatis, basi crasse marginato, transversim impresso, utrinque striolâ profunde impresso, angulis posticis acutis; elytris fortiter punctato-striatis, striâ suturali punctatâ, interstitiis lævibus.

L. c. 3¼ lin.

Nagasaki in Kushiu, Hiogo in Nipon. Kiukiang and Foochow, China.

Eyes convex, finely granulated, antennæ with a 5-jointed club.

L. PRÆUSTA, sp. n.

Elongata, postice angustata, rufo-ferruginea, antennarum clava, tarsis, femorum elytrorumque apicibus nigris; capite parce punctato; thorace latitudine longiore, obsoletius parce punctato, antice convexo, dilatato, basi marginato, transversim impresso, profunde punctato, striolâ utrinque obliquâ impresso; elytris punctato-striatis, interstitiis lævibus, striâ suturali punctatâ, integrâ.

L. c. 3½ lin.

Distributed as the last species in Japan and China.

Antennæ with a 3-jointed club.

L. ATRICEPS, sp. n.

Elongata, sub-parallela, nigra, thorace, prosterno femorumque basi rufis, elytris cyaneis; thorace latitudine longiore, antice convexo, dilatato, basi tenue marginato, transversim impresso, profunde punctato, striolâ utrinque brevi impresso; scutello nigro; elytris punctato-striatis, basi marginatis, interstitiis lævibus.

L. c. 2—2¼ lin.

Nagasaki, very local.

Antennæ with a 5-jointed club; eyes finely granulated, convex.

L. RUFICEPS, sp. n.

Elongata, sub-parallela, ferruginea, antennis (basi excepta) abdomine pectoreque nigris, elytris cyaneis capite parce punctato; thorace latitudine longiore, parce obsoletius punctato, utrinque striolâ brevi impresso; scutello rufo; elytris basi marginatis, punctato-striatis, striâ suturali punctatâ, integrâ.

L. c. 2¼ lin.

Abundant in Kushiu, and occurs in China in the same latitude. ☐

Antennæ with an apparently 4-jointed club.

(L. ?) JANSONI, sp. n.

Elongata, postice antennuata, tota rufo-ferruginea, nitida; capite thoraceque parce punctatis, hoc sub-elongato, lateribus parallelis, antice convexo, basi tenuissime marginato, late transversim impresso, utrinque vix striolato; elytris basi marginatis, obsolete striato-punctatis, interstitiis lævibus.

L. c. 1½ lin.

A common species throughout Nipon and Kushiu.

Forms the type of a distinct genus with coarsely granulated eyes, elongate antennæ, a 3-jointed club, and short tarsi.

G. R. CROTCH.

An apparently non-descript species of *Languria*, overlooked by Mr. Lewis when submitting his Japanese *Erotylidæ* to Mr. Crotch, having been just placed in my hands by the former gentleman for description, in order to render the above paper as complete as possible, I have drawn up the following characters from the solitary example hitherto found by him:—

L. PRÆTERMISSA, *sp. n.*

Elongata, sub-parallela, rufo-testacea, antennis extrorsum, scutello, abdominisque apice nigro-piceis, elytris cyaneis; thorace elongato, postice angustato; pedibus gracilibus. *L. c. 2 lin.*

Antennæ capitis thoracisque prope longitudine, tenuiores, clavâ tri-articulatâ, rufo-testaceâ, articulis 5 ultimis nigro-piceis. Caput vertice fortiter parcius punctatum. Thorax apice coleopterorum latitudine anticâ paulo longior, basin versus angustatus, sat convexus, parce punctatus, postice marginatus, transversim impressus, et utrinque striolâ brevî notatus. Scutellum læve. Elytra thorace plus duplo longiora, punctato-striata, interstitiis planis, striâ suturali integrâ, punctatâ. Pedes elongati, rufo-testacei, tarsis apice picescentibus.

Hiogo, one example on Maiyasan.

This species is most nearly allied to *L. ruficeps*, Crotch, but is readily distinguished by its narrower form, slender antennæ and legs, coarsely punctured head, the proportions and sculpture of the thorax, and its rufo-testaceous meso- and meta-thorax and basal segments of abdomen.

E. W. JANSON.

28, Muscum Street, London, W.C.: Nov. 22nd, 1872.

The three following apparently new species of *Languria* from Japan have been detected since the above descriptions were written.

LANGURIA NIGRITARSIS, *sp. n.*

Elongata, nitida, suprâ cupreo-ænescens; corpore subtus, ore, femoribus tibiisque rufo-piceis, metasterno æneo-maculato, antennis tarsisque nigris. Capite sat densè punctato. Thorace longitudine vix latiori, anticè paulo angustato, ante angulos posticos paulo constricto, parum convexo, posticè transversim impresso, parce subtilius punctulato;

lateribus leviter rotundatis; angulis anticis vix prominulis, rufis, posticis acutiusculis; scutello lævi; elytris apicem versus angustatis, apice rotundatis, striato-punctatis, interstitiis subtilissime sub-seriatim punctulatis.

L. c. 4 lin.; *lat.* 1 lin.

Very closely allied to *L. Lewisii*, Crotch, but, besides the colouration, it differs from that species in the thorax being shorter, and the anterior angles being very slightly prominent, whereas in *L. Lewisii* they are rounded. The punctures of the striæ on the elytra are continued to the base, but in *L. Lewisii* they are almost obliterated in the region of the scutellum.

The thorax is distinctly narrower than the base of the elytra, slightly convex, slightly narrowed in front, gently rounded at the sides, slightly narrowed before the posterior angles, and not quite as broad at the posterior angles as across the middle of the thorax.

The punctuation is sparse and delicate, almost obliterated towards the sides.

Awomori Bay, extreme north of Nipon. One example. Coll. G. Lewis.

LANGURIA PECTORALIS, sp. n.

Elongata, nitida, supra ænea; corpore subtus et ore rufo-piceis; metasterno, abdominis segmentis 1 & 2 apiceque æneo-maculatis, antennis nigris, pedibus fuscis, geniculis tarsisque nigro-piceis. Capite dense punctato. Thorace longitudine paulo latiori, antice vix angustato, ante angulos posticos vix constricto, parum convexo, postice transversim impresso, parce sat distincte punctato, lateribus leviter rotundatis, angulis anticis prominulis, obtusis, rufis, posticis acutiusculis. Scutello lævi. Elytris apicem versus angustatis, apice rotundatis, striato-punctatis, interstitiis subtilissime sub-seriatim punctulatis.

L. c. $4\frac{1}{2}$ lin.; *lat.* $1\frac{1}{2}$ lin.

Extremely close to *L. nigritarsis*, but distinguished from it by the colour, by the (still very slightly) prominent anterior angles of the thorax, which is slightly less convex. The thorax is slightly narrower than the base of the elytra, very little convex, very slightly narrowed before the posterior angles, as broad at the posterior angles as across the middle of the thorax. The punctuation is distinct, but not very close, less distinct towards the sides.

Hakodaté, in Yesso. Three examples. Colls. B. M. and G. Lewis.

LANGURIA CONVEXICOLLIS, sp. n.

Elongata, nitida, supra ænea; corpore subtus rufo-piceo; meta-

sterno, abdominisque segmentis 1 & 2 æneo-maculatis; pedibus rufo-piceis, geniculis tarsisque nigro-æneis. Capite sat dense punctato. Thorace longitudine latitudine æquante, antice angustato, ante angulos posticos constricto, per-convexo, postice transversim impresso, sat dense et distincte punctato, lateribus rotundatis, angulis anticis prominulis, rufis, posticis acutiusculis. Scutello lævi. Elytris apicem versus angustatis, apice rotundatis, striato-punctatis, interstitiis subtilius seriatim punctulatis.

L. c. $4\frac{3}{4}$ lin.; lat. $1\frac{1}{2}$ lin.

Closely allied to the preceding, but at once distinguished by its convex thorax, which is the same width as the base of the elytra, distinctly narrowed in front and before the posterior angles, the sides much and evenly rounded, distinctly narrower at the posterior angles than across the middle; the anterior angles also are a trifle more prominent than in either of the preceding.

Hakodaté. One example. Coll. G. Lewis.

C. O. WATERHOUSE.

British Museum: December 11th, 1872.

Sub-fam. II. EROTYLIDES.

Trib. I. DACNINI.

Genus DACNE, Latr.

D. JAPONICA, sp. n.

Oblonga, rufo-ferruginea, elytris nigris, fasciâ communi fulvâ, humeris maculâque denticulatâ scutellari nigris; capite thoraceque fortius punctatis; scutello rufo, punctulato; elytris sub-seriatim, lateribus confuse sat crebre punctatis.

L. c. $1\frac{3}{4}$ —2 lin.

Nagasaki, in fungi on trees.

D. PICTA, sp. n.

D. japonicæ proxima, sed minor, antennis brevioribus, clavâ valde transversâ, tarsis brevioribus, thoracis disco late nigro, elytris fasciâ prope basin fulvâ utrinque interruptâ notatis.

L. c. $1\frac{1}{2}$ lin.

Distributed throughout the islands.

Genus EPISCAPHA, Lac.

E. FORTUNII, sp. n.

Nigra, oblonga, tenuissime pubescens, sparse haud profunde punctata, thorace sub-transverso, lateribus marginato, basi bisinuato; elytris haud seriatim punctatis, singulis annulo humerali cum processu hamato suturam versus, fasciâque multidentatâ et sub-arcuatâ infra medium, rufo-sanguineis.

L. c. 8 lin.

Hiogo, in fungi on firs, in great profusion. China (Fortune).

Trib. II. *TRIPLACINI*.Genus *TRIPLAX*, Hbst.*T. JAPONICA*, *sp. n.*

Oblonga, læte ferruginea, antennis (basi excepta) pectore elytrisque nigris; capite thoraceque fortiter parce punctatis, hoc valde transverso; scutello nigro, punctis raris impressis; elytris punctato-striatis (striis 9) interstitiis fortiter sed parcius punctatis.

Var. antennis ferrugineis.

L. c. 2—2½ lin.

Nagasaki and Hiogo.

Resembles *T. rufipes*, but is less ovate, the antennæ are much longer and with only three joints red, the 3rd joint is longer than the others, joints 4 and 5 are also elongate; the maxillary palpi are broadly dilated, the elytra immarginate.

Genus *CYRTOTRIPLAX*.

Tritoma, Fab. [*nec Geoff.*]: type, *bipustulata*.

C. LEWISII, *sp. n.*

Ovata, tota ferruginea, clypeo, antennis pedibusque nigris; capite thoraceque parce punctatis, hoc basi sinuato, tenuissime marginato; scutello magno, sub-lævi; elytris punctato-striatis, interstitiis evidenter punctulatis; abdomine punctulato, lineâ coxali vix ullâ, metasterno lateribus fortius punctatis, mesosterno transverso, plano, prosterno truncato.

L. c. 2½ lin.

Ipongi, Nagasaki, in fungoid growth on rails.

Antennæ with the 3rd joint sub-elongate.

Trib. IV. *EROTYLINI*.Genus *AULACOCILUS*, Lac.*A. JAPONICUS*, *sp. n.*

Ovatus, supra nigro-cyaneus, antennis pedibusque nigris; capite thoraceque fortiter parce punctatis; scutello lævi; elytris seriatim punctatis (seriebus 8), interstitiis evidenter parce punctatis, subtilissime vix visibiliter pubescentibus, singulo vittâ obliquâ basali (a basi prope scutellum fere ad marginem pone humerum), fasciâque communi (antice concavâ) sub-apicali marginem haud attingenti, rufo-ferrugineis.

L. c. 3½ lin.

On Maiyasan, Hiogo; two examples.

This is the first species from Japan.

G. R. CROUCH.

Note on Acidota cruentata, Mann., var. ferruginea, Erichson, Gen. et Spec. Staph., p. 862; Kraatz.—This interesting and very rare form of a somewhat scarce species was not known to me as British, until Mr. R. Lawson took five specimens of it, unaccompanied by the type, in flood refuse, during the past autumn, near Scarborough; in the neighbourhood of which town he also took in October last many examples of ordinary *cruentata*, out of moss, without finding one of the above mentioned race. I think, also, that there is one of the latter in the collection of the Marquis of Ripon, taken by Mr. E. A. Waterhouse near Studley, Yorkshire; and I am quite certain that out of the numerous specimens of *cruentata* found by myself some years ago (under peculiar circumstances) at Chelsea, not one departed in the least from the normal condition of the species.

Both Erichson and Kraatz, though attributing a different value to the insect now under consideration, agree in referring it with doubt to Lacordaire's description of *ferruginea*; in which doubt I think they were more than justified, as, from the latter author attributing the same length of elytra to it and to *crenata*, it is clear he could not have meant anything but type *cruentata*, to which both Fairmaire (Faune, &c., p. 634) and Fauvel (Faune Gallo-Rhénane, iii, p. 89) refer Lacordaire's insect,—without, however, mentioning any variety; Fairmaire simply quoting the reference to it (Faune Ent. Par. I, p. 477, erroneously 447) without even the synonymic name, and Fauvel intimating an examination of the type. De Marseul, in his Catalogues, follows Erichson, considering *ferruginea* to be a good species, and attributing *quadratum*, Zett. (*quadrum*, Zett., olim, nec *Arpedium id.*, Grav.) to it as a synonym; but there is nothing whatever in Zetterstedt's description to justify this, and Thomson (Skand. Col. iii, p. 205) considers the latter to be another species altogether (though how he reconciles Zetterstedt's "elytra thorace vix dimidio longiora" with his own "prothorace parum longiora" is not exactly clear). Kraatz gives *ferruginea* as "var. ?" of *cruentata*; and from only knowing of two specimens of it (including Erichson's one), is evidently unable to form a decided opinion on the point. But Mr. Lawson's captures enables me to state positively that *ferruginea*, Er., is only a form of *cruentata*;—compared with which it is smaller, narrower, and with markedly shorter elytra, of which the punctuation seems more confused, as the abbreviation naturally diminishes the middle portion, where it is less irregular. In all other respects, there is not a particle of difference to be found.

It may not be uninteresting to note that, judging from a single specimen in my collection (given to me long ago by the Rev. T. A. Marshall), *A. rufa*, Grav., holds a precisely analogous position with regard to *A. crenata*, having shorter elytra, which are therefore somewhat less strongly and regularly punctate-striate. Of this character, however, I do not see any mention in the authors above quoted.

Thomson adopts *rufa*, Gyll. (1810), for *cruentata*, Mann. (1830); considering, as I presume, that *rufa*, Grav. (1802), being sunk as a colour-variety of *crenata*, does not interfere with Gyllenhal's insect of the same name.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: December, 1872.

Note on Agapanthia micans, Paykull.—As our Longicorn beetles are so few in number, and (as one would think) so well known, it very seldom becomes necessary to refer to one's specimens: but I was, nevertheless, recently greatly surprised to find among my neglected series of *Stenostola ferrea*, an individual of the above mentioned species (not hitherto reputed British), which has certainly been in that position ever since I had a collection. I have never once taken *S. ferrea*, and I

have no note of the locality of this specimen, which, according to my remembrance, was given to me by an old correspondent in one of the midland counties. The species occurs in France and Germany (also in Italy, Dalmatia, the Caucasus, Russia, and elsewhere), so that it may really be indigenous, and this note will, at all events, serve to direct attention to the subject. The insect is of the size and facies of *S. ferrea*, but of a purple or dark violet colour, with comparatively shorter elytra, longer (12-jointed) antennæ, and simple claws to the tarsi (not cleft at the base).—ID.

On the superficial sexual characters of the British species of Bruchus.—The male characters of the *Bruchi* have scarcely been noticed by English writers, yet they are so useful in determining the species, that I am induced to offer a few notes on those species I have been able to see. Walton notices the male characters of *B. atomarius* and *luteicornis*; Thomson, in addition, points out those of *loti*.

Section *a* [Hind femora toothed].

B. pisi, L., seems to present no appreciable external sexual differences, beyond, perhaps, having the posterior tibiæ and tarsi a trifle broader in the ♂.

B. pectinicornis, L. Antennæ of ♂ darker than in ♀, and with joints 4—11 triangularly developed internally; antennæ of ♀ simple. Middle tibiæ simple in both sexes.

B. rufimanus, Sch. Antennæ of ♂ joints 6—11 wider than in ♀, especially joints 6 and 7; middle tibiæ of ♂ much bent and furnished with a hook at the apex.

B. atomarius, L., Thoms.* (*seminarius*, Walton, nec Gyll.). Middle tibiæ of ♂ slightly bent and armed with a small tooth on the inner margin, about a quarter of their length before the apex.

B. luteicornis, Illig. Antennæ clear red in ♂, sometimes the five terminal joints a little darker; middle tibiæ of ♂ (red) bent and armed at the apex with a bifid and blunt black hook.

B. loti,† Pk. Middle tibiæ of ♂ with the apex incurved and armed with a bifid hook.

Sec. *b* [Hind femora not toothed].

B. ater, Marsh., nec Thoms. (*villosus*, F.). The males seem to have the hind tarsi shorter and broader, with the basal joint thicker and more curved.

B. canus, Germ. Antennæ of ♂ longer than in ♀, joints 5—10 a little developed triangularly internally; tibiæ simple in both sexes.

B. cisti, F. (*ater*, Thom., nec Marsh.). Antennæ of ♂ longer and much stouter than in ♀; joints 5—10 triangularly developed internally.

Of *Bruchus nubilus*, Boh., there is one, and of *B. lentis*, Boh., two, in Dr. Power's collection; these belong to Sec. *a*. These specimens are, I think, ♀; at all events, they present no appreciable sexual characters.

Bruchus affinis and *vicia* (*nigripes*, Gyll.) I have not seen.—H. S. GORHAM, Rusper: November 12th, 1872.

* Thomson, without assigning any reason, proposes to adopt this name for the insect known to us as *seminarius*. There are two distinct European species of the latter name, one of Linnaeus, the other of Gyllenhal. Our insect is Linnaeus's (as proved by Walton's examination of that author's types); and it would seem that Gyllenhal's species, being posterior in date, is the one that would require re-naming. Possibly, Thomson has considered that the adoption of *atomarius*, under which name Linnaeus appears from this to have again described his species, will avoid the coining of a new name for that of Gyllenhal's.—E. C. R.

† According to Allard ('Etude sur le groupe des Bruchites,' supplemented in 'Petites Nouvelles Entomologiques,' No. 6, and Berlin. ent. Zeitschr., xiii, p. 326 *et seq.*), the true *B. loti* does not exist in any collection that he has seen; the inference from his remarks being that *B. oxytropis*, Schön., usually represents it. *B. loti* is stated to be distinguished from the latter by its punctiform scutellum being covered with very dense pubescence, which is continued on the suture, and by its general pubescence being more sparse.—E. C. R.

On the spinning of the larva of Balaninus brassicæ, Fab.—On a previous occasion (Ent. Mo. Mag., vi, p. 137), I gave some particulars of the life-history of this beetle, mentioning *inter alia*, that the full-fed larva usually drops to the ground to form there its earthen cocoon, coated inside with silk, but that in some instances the larvæ contented themselves with fabricating an umbrella-shaped silken roof, underneath which the sculptured pupæ rested without the additional protection of an earthen cocoon. I had over and over again observed these full-fed beetle-larvæ quitting the galls of *Nematus Fallisnieri*, Hart., and simply falling to the ground. They are very plentiful on some old trees of *Salix fragilis* in the garden here, and having often watched their proceedings, I concluded that a "culbute" was their only way of reaching their end. In this I find I am mistaken; as, a little before eight o'clock in the morning of the 25th October last, I found the amber-coloured grub of this weevil suspended by an almost invisible silken thread, seven feet in length, and attached to the leaf of an overhanging bough. A slight breeze kept the curved larva swinging to and fro, which motion first directed my attention towards it. It was then about three feet from the ground, but, while I kept watching, it descended that distance, and then cut the cable. It had, however, given me time enough to trace the thread with my lens from its buccal organs up to the leaf whence it had started, and which, as I expected, showed its freshly gnawed exit-hole in the Saw-fly gall. I was most unwilling to credit this minute curculionidous larva with the extraordinary feat of spinning which it accomplished before my eyes. Suspicious of a possible error on my part, I took the trouble, as already stated, of tracing the whole length of the thread; subsequently, I measured the distance, and found it to agree with my original estimate. The branch in question stands far out by itself and overhangs a lawn; so there was no possibility of a nearer point of attachment for the silken cord. The larva itself I have since carefully compared with my description drawn up in 1869, with which it tallies in every respect.—ALBERT MÜLLER, South Norwood, S.E.: November 1st, 1872.

Notes on captures of Hemiptera and Coleoptera at Deal.—

HEMIPTERA.—From the 4th to 14th September, I devoted many hours to a diligent search of the sand-hills between Sandown Castle and the "Chequers," for insects of this Order; and, passing over an enumeration of the commoner species, the following seem worthy of record. Except where otherwise noted, all were found at the tops of the hillocks, among the roots of the grasses growing thickly under and among the procumbent branches of the oldest dwarf sallows or under bushes of *Hippophaë rhamnoides*, these positions being the best that could be obtained for shelter during hibernation.

Strachia oleracea, Lin. (4), and *Corizus parumpunctatus*, Schill. (3), by sweeping the flowers of *Pimpinella saxifraga*, abundant in the hollows.

Eurygaster nigra, Fab. A single specimen of the pale variety (var. *a. communis* [of *E. hottentotta*], Fieb.), exactly the colour of the sand.

Pseudophlæus nubilus, Fall. A single specimen.

Ceraleptus squalidus, Costa. I got a fine series of this species, hitherto very rare, only two British examples being known, and both from this locality. It is a very sluggish creature, for, while one individual was turning himself over, a *Verlusia rhombea* turned out at the same time, and ran up my arm to the shoulder. *Coreus difficilis*, Vollenh. (Tijdschr. v. Entomol. 2 ser., iv, 56, pl. 1, fig. 5, 1869), must be quoted as a synonym of this species.

Neides parallelus, Fieb. Occasional among dead grass stems under bushes. These skeleton-insects so closely resemble broken bits of grass that they would have had every chance of being overlooked if they could have restrained their feelings or had the sense to be quiet; but they began to use their spider-legs immediately, and so betrayed the presence of their bodies.

Calyptonotus lynceus, Fab. Occasional among the dead leaves under the bushes.

Emblethis verbasci, Fab. By the most assiduous searching, I could get only three of this rarity, of which the first native specimen was taken at this place last March (*vide ante* p. 4). The species is said by Frei-Gessner (Mitth. d. Schweiz. ent. Gesells. i, 308) to be found in Swiss collections under the name of *Pachymerus marginepunctatus*, Wolff, following, probably, Herrich-Schäffer's erroneous citation of the name to his figure of *E. verbasci* in the 'Fauna Germanica.' Wolff's species is quoted by Walker in his 'List' as British, but I know of no authentic example, nor record of its capture.

Plinthisus bidentulus, H.-S. Occasional.

Teratocoris Saundersi, D. and S. A single example among rushes.

COLEOPTERA.—*Ceuthorhynchideus Chevrolatii*. Four specimens under the leaves of *Achillea millefolium*. (I also took two at Folkestone under similar conditions).

Aphodius sus, Fab. About twenty flew to the light of the table lamp on one evening, and at no other time.—J. W. DOUGLAS, Lee: October 8th, 1872.

Captures of Hemiptera.—Mr. G. C. Champion has just sent for my inspection the following species captured by him:—

Neides parallelus, Fieb., taken by "grubbing," at Deal, in the middle of May; evidently hibernated.

Ceraleptus squalidus, Costa, one taken by sweeping, in a wood near Strood, in the middle of September; a new locality for this rare species.—J. W. DOUGLAS, Lee: 10th October, 1872.

Vanessa Antiopa.—The great invasion of our East Coast by *Vanessa Antiopa* is a very uncommon event, and is to be accounted for, I think, by the very uncommon weather which prevailed at the time. I consider the inference drawn by Mr. Stainton that the invaders are natives of Norway to be true.

A very strong north-easterly wind prevailed during August and the first six days of September, quite sufficient to carry these strong and large-winged Butterflies across the North Sea in about fifteen hours.

Rösel, of Nuremberg, who reared this species 130 years ago, mentions only willow as the food.—T. CHAPMAN, Glasgow: October 16th, 1872.

Vanessa Antiopa.—With reference to Mr. Stainton's remarks on *V. Antiopa* in the Ent. Mo. Mag. for October last, I may mention that the insect was taken at Uckfield, in this county, by a gentleman, under circumstances which lead me to suppose hibernation was in contemplation.

On Friday last, the 11th October, my friend was standing in a timber-yard about 12 at noon. The day was clear, the sun shining, and the air, although not cold, was crisp and autumnal. In the yard there was a lump of oak-chips, three or four feet high, placed under an oak tree. The gentleman noticed a butterfly,

which did not seem familiar to him, hover two or three times in a sluggish manner about, or fly round, this lump of chips, and as many times settle on it. Then he saw the insect crawl between the chips into the lump, on the side on which the sun was shining. He carefully removed the chips and found *Vanessa Antiopa*, apparently in a state of repose, on a small chip about a foot inside the lump. It was a good specimen, but seemed in a semi-dormant state, and was secured without difficulty.

The border certainly is not white, but has a yellowish tendency. At the tip of each hind-wing the margin is decidedly yellow.—A. J. HAY, Steyning, Sussex: October 18th, 1872.

Vanessa Antiopa.—The following additions to the record of appearances of *Vanessa Antiopa* this year, contained in last month's "Entomologist's Monthly Magazine," may be welcome, and would seem to corroborate the hypothesis you have broached as to the origin of the numerous examples observed.

On 29th August, my friend, Mr. Robert Hind, of this city, took one off the summit of one of the palisades in front of the County Lunatic Asylum in Bootham here. Not being at all prepared for introduction to so distinguished an individual at such a place and time, he had to trust to finger and thumb for securing it, and succeeded, though with some detriment to its beauty.

On 17th September, being at Muston Lodge (about 1½ miles West of Filey), I saw one in the bright sunshine, about nine a.m., sailing gracefully along the summit of a belt of rather lofty trees, which enclose the lawn and garden in front. Its peculiarly stately, gliding motion first attracted my attention. I took it for a bird unknown to me. I lost sight of it for a few moments amongst the foliage; it presently re-appeared, and I then saw it was a butterfly. In its progress round, it descended low enough to enable me to identify, but, to my regret, not to capture it; and I saw it glide away not without some admixture of pleasure in the disappointment at its evasion of the fate to which I would have liked to consign it.

On the 19th September, our venerable friend, Mr. Thomas Allis, more fortunate than myself, captured one in his garden at Osbaldwick (1½ or 2 miles from York), which he has appropriately added to the rich collection of his late lamented son (T. H. Allis), so munificently presented by him to the Museum of the Yorkshire Philosophical Society. Mr. Allis had to improvise a net,—*Vanessa Antiopa* loitered long enough for this, and its capture was accomplished. This, for a veteran naturalist in his 85th year, is a noteworthy performance.

One has also been captured at Selby, another was seen by a lady at Bridlington, and Mr. McInnis, of Beverley, informs me that several (5 or 6) have been seen or taken at and near that town.

Thus eight or ten examples at least, all occurring on or near the East Coast of Yorkshire, may be added to your list.

Mr. Allis' specimen has the *white* border. It is rather smaller than the average of some foreign examples in my possession. The one I saw appeared to me to have the border *white*.

Young collectors may derive encouragement from our venerable friend's experience, and indeed from my own. Having followed the pursuit for a period of 42 years or thereabouts, without once seeing an individual at large or alive, I had ceased to hope that the pleasure of seeing one would be vouchsafed to me.

Notices of some of the above may reach you from other sources, but lest they should not, I thought it worth while to send you a record of them.—J. BIRKS, York: 18th October, 1872.

Vanessa Antiopa.—This was the first insect I ever bred in America, as far back as 1861. It is quite common here during some years, and I have known the worn and faded spring specimens, which had hibernated, to congregate in considerable numbers (in one instance round a barn). Its favourite food-plant here is willow, and I have usually found it within arms' reach. It is also found here on elm, birch, Lombardy-poplar, and silver-leaved poplar.

It is double-brooded; the first brood of larvæ appearing late in May and early in June, and the second brood in August. We have them with the border of the imago of all shades, from white to deep yellow. I was always under the impression that the white was merely a fading, as I have never noticed it on newly bred specimens. I could hardly believe that an imago taken in August had hibernated.

In 1870, the larvæ were very numerous around Boston, Mass., during the month of July, stripping the elms and willows.—C. V. RILEY, St. Louis, Missouri: October, 1872.

Syntomis Phegea.—Several years ago, my late friend, Thomas Henry Allis, sent me a specimen of this insect for examination, which he found in the possession of a collector in the North of England, who assured him he captured it in Yorkshire, but I do not recollect the exact locality. It had evidently been on the wing for some time before it was captured, and it is not very probable that such a worn specimen would have been sent as a type from the continent.—HENRY DOUBLEDAY, Epping: December 13th, 1872.

Note on the larva of Acronycta alni.—I found a larva of this species in Dunham Park on the 20th of July last; it was about three-eighths of an inch in length, destitute of clavate hairs, with about three of the front segments of a cream colour mixed with chocolate, the next six all chocolate, and the remainder chocolate and cream colour. After its first and second moults, it had six clavate hairs just behind the head, and the colour remained much as before. The third cast was to a gayer attire, as it then became black, with thirteen yellow transverse bands, one on the middle of each segment extending almost to the spiracular lines; the first segment had six clavate hairs placed transversely behind the head, the second and third segments were destitute of clavate hairs, the fourth to the thirteenth had each two clavate hairs, sub-dorsal in position. It was about one inch and a half in length, when it again cast its skin, and exposed six parasitic Dipterous pupæ, instead of the wished for single Lepidopterous one.—JOSEPH CHAPPELL, 1, Naylor Street, Hulme, Manchester: 26th October, 1872.

Natural History of Celena Haworthii.—Beyond the very brief note by the late Mr. R. S. Edleston of Manchester, in the 'Zoologist,' No. clxxii, I am not aware of any published account of the larva of this species; and, having had a great desire to become acquainted with it ever since I read that note, and having corresponded with Mr. Edleston on the subject, I at last found a friend who could help me to my

object in Mr. James Batty of Sheffield. From him I received on the 21st of last July four larvæ, which he had taken from *Eriophorum vaginatum*. They were found feeding a little above the root-stocks growing in a damp soil on wild moorland; and Mr. Batty kindly sent a large tuft of the growing grass, which sufficed for bringing the larvæ to full growth.

Of the four larvæ, one was evidently diseased, as it died on the evening after its arrival, but the remaining three were lively and fed well; and, as one of them seemed to be full-fed by the 25th of the month, I then kept it apart from the rest, and saw it was beginning to spin up on the same evening: on the 31st, I made an examination, and was glad to observe it in the pupa state, reposing in a perpendicular position within a slight cocoon composed of a few silken threads of rather open work, holding around it some gnawings of grass and a little frass, and situated amid the sheaths of the grass shoots. The perfect insect (a ♂) came forth on August 15th; but, unfortunately, the tuft of grass grew mouldy, and thus the other two never reached the imago state.

The full-grown larva was three-quarters of an inch in length, and of moderate stoutness, cylindrical in character, except that the thickest segments were the third and fourth, the body tapering from them to the head, which was the smallest, and again behind most gradually and slightly to the rounded anal tip, the plate on which was flattened, and rather depressed in the middle, having a slight marginal ridge behind.

The colour of the head, the plate next to it, as well as that on the hinder segment, was pale reddish-brown, and highly polished, while the plate on the second segment was margined in front with dark brown; the mouth and ocelli dark brown; the body of a middle tint of purplish brown above, and paler below the spiracles, including the belly and legs, the skin though smooth, quite without gloss; a dorsal fainter paler line was visible chiefly at the end of each segment; the sub-dorsal stripe a little more distinct and paler; the round tubercular warty spots were all very dark brown and shining, each being furnished with an excessively fine short brown hair; the usual trapezoidal series on the back, gradually decreasing in size from the fourth to the eleventh segment, were more conspicuous on the thoracic segments, for there they were transversely oval in form, as they also were on the twelfth and on the front sub-division of the thirteenth, and considerably enlarged on these last; most of the spots along the sides were round, a small one a little above and a large one a little behind each black spiracle, while lower down towards the belly were two more in a line with each other parallel to the line of spiracles; those on the sides of the third and fourth segments were larger and somewhat of a drop shape, the largest being behind, below them were three others, smaller, forming a triangle on each of those segments; the side spots were also enlarged on the twelfth and thirteenth; the hind ridge of the anal plate and the tips of the ventral legs were dark ochreous-brown.

The above description exactly suited to the three healthy larvæ, and also to the sickly one as far as details went, but the colour of the skin of that larva was pale greyish.

The pupa was half an inch in length, moderately thick in proportion, widest across the thorax, and from thence diminishing a little towards the blunt and rounded anal extremity, which was furnished with two sharp bristle-like spikes

meeting near their points ; the wing-cases were well defined, but not very projecting : its colour at first was a light reddish-brown which changed gradually afterwards to darker brown, the abdominal divisions a little paler than the rest and with little gloss, the other parts being highly polished.—WILLIAM BUCKLER, Emsworth : October, 1872.

Description of the larva of Eubolia lineolata.—A specimen of this insect which I captured on the Cheshire sand-hills in the early part of April last deposited a few eggs. They were in little clusters, each batch containing eight or ten eggs ; their colour was at first pale yellow, but soon changed to bright ochreous-brown. On April 30th, they had become slaty-brown, and on the following day the young larvæ emerged, their colour orange, tinged with green. They fed readily on *Galium saxatile*, though *Galium verum* is probably their natural food, as it grows abundantly on the sand-hills. On June 8th, I took down a description as follows:—Length about seven-eighths of an inch, slender, and of nearly uniform width throughout. Head a little broader than the second segment and slightly notched on the crown ; the face rather flat. Body cylindrical and very slightly attenuated from the 11th to the anal segment. Skin tough, along the sides and at the segmental divisions rather wrinkled.

Ground colour pale olive-green, at and on each side the segmental divisions pink ; head greenish-yellow, spotted with black. Dorsal line dark green, and there is a still darker and much broader smoky stripe above the spiracles ; between this stripe and the dorsal line are two faint waved olive-brown lines. The ventral surface is bright yellowish-green, with paler central stripe ; the segmental divisions sulphur-yellow. The larvæ went underground and changed to pupa about the middle of June ; the latter is about a quarter of an inch in length, smooth and shining ; very dark brown, with the abdominal divisions pale brown.—GEO. T. PORRITT, Huddersfield : October 17th, 1872.

Notes on forcing Acidalia larvæ.—Last year, having succeeded in forcing the larvæ of *Acidalia strigilata* by placing them in a greenhouse, I was induced this season to try the experiment with other larvæ of that genus ; and, as it has proved a success, I venture to send a few notes as to the mode of treatment.

I feed the larvæ up in the usual glass cylinders, placing calico round them to exclude the sun's rays, which, reflecting through the glass, would no doubt quickly kill the larva and wither the food-plant. As soon as the larvæ are about to assume the pupa state, I place mould in a saucer, and, to prevent it becoming saturated with moisture from the evaporation of the water beneath, I slightly raise it to admit a current of air passing beneath, and also place a block of wood in the centre, with a hole through it to admit a plant. It is essential to do this, for, if the plant come in contact with the mould, dampness is diffused through it in a very short time.

The following are the particulars of the species bred :—*Acidalia strigilata* ; from twenty larvæ reared seven moths, which appeared from 21st September to 20th October, 1871, the remaining larvæ hibernated. *A. trigeminata* ; bred a number of moths from 26th August to 20th September, no larva hibernating. *A. emutaria* ; from twelve larvæ bred ten moths, which appeared from 27th August to 1st Septem-

ber, the two remaining larvæ hibernated. *A. holosericata*; bred several moths from 7th to 20th September, no larva hibernating. All the above were fed upon *Polygonum aviculare*, which, fortunately, stands the heat well.

I may add that I have tried the experiment with several of the hibernating larvæ of the butterflies, and also of the *Bombyces*, but have failed in every instance. —A. H. JONES, Shrublands, Eltham: 2nd October, 1872.

Note on Endopisa nigricana.—At the end of July last, I collected a number of pea-pods containing nearly full-fed larvæ of *Endopisa nigricana* (*pisana*), and looked to breed moths from them next summer. I was, therefore, much surprised to breed six specimens last month (August), two ♂ and one ♀ on the 19th, and three ♀ (one each day) on the 20th—22nd. They were not artificially forced forward, but were kept in a fireless room facing the north, and with the window always open.

I have failed to find any record of this insect attaining the imago state within three weeks from its larval condition, as it did in this instance.—J. E. FLETCHER, 9, Pitmaston Road, Worcester: September 16th, 1872.

Answer to Mr. Ritsema's "Note on Crinodes Sommeri," &c.—Before answering the more revelant remarks in Mr. Ritsema's notice, I would (*apropos* of the first paragraph) remind him of a common proverb, which in Germany runs somewhat as follows:—"Der in einem Crystal-palast wohnt, darf keine Steine werfen." A simultaneous attack upon a new genus, in two different Magazines, is calculated to impress one with the idea that the discoverer of the supposed error must have been anxious that his acumen should be widely recognised: as an answer to the entirely unwarranted supposition contained in the said paragraph, I need merely inform Mr. Ritsema of one or two facts, which, had he studied my writings, he might have discovered for himself. Hübner's 'Sammlung' has been almost constantly on my table for the last seven years, and I know his figures as well as I know my own.

I do not make a practice of hunting up every conceivable resemblance in pattern between a new genus and those previously figured in works known to me; I content myself, at most, with a structural comparison between closely allied forms.

I did refer in my paper to the genus *Dudusa* (inadvertently written *Duduma*), a group to which *C. Sommeri* probably belongs*; I had examined two species of this genus, and therefore could speak with confidence of its relationship to *Tarsolepis*.

If Hübner was not attached to the "type system," there is no reason why *C. clara* of Cramer should not stand as the type of the genus *Crino* quite as much as *C. Sommeri*.

The remainder of Mr. Ritsema's remarks being to a great extent based upon suppositions, I shall content myself with answering his direct statements. He says that the anal tuft entirely covers the sexual organs; this is not the case with any of the specimens which I have examined, whether of *Crinodes*, *Dudusa*, or *Tarsolepis*.

As to the probability of a long curved brush of carmine hairs being concealed about the body of a *Crinodes*, it is to my mind more preposterous than it would be, were our discussion respecting the identity of the Phillippine *Eusemia bambucina* and

* The females of *Dudusa* have a zone of spatulated scales round the tail, but of only half the length of those in the males; the antennæ are moderately pectinated, but there are no tufts of long hairs at the base of the abdomen in either sex.—A.G. B.

the South American *Limnas zoega*, to suggest that the difference consisted in the *Eusemia* having concealed the red spots towards the base of the wings.*

If the size of the body is dependent upon sex, it is evident that *C. Sommeri* must be a male; but, as Mr. Ritsema is avowedly working principally with Mr. Snellen's male, which agrees in all the most important characters with Hübner's figure, it does not signify to what sex the type of *C. Sommeri* belongs: it now seems highly probable that Mr. Ritsema has the Hübnerian species, and it is more evident than ever that I have not.

The inaccuracies stated to exist in Hübner's figures are easily explicable when we know that figs. 1 and 2 represent the opposite surfaces of *C. Sommeri*, and that in fig. 2, hardly any of the inner margin is visible, so that it is impossible to decide whether it is waved or not.

I have now no more to say on this subject until I have seen Hübner's type: if the two genera come from Java, they will probably add another to the numerous illustrations of mimetic analogy already on record. I shall not, therefore, until I have proof of some such interesting fact, by a comparison of the actual type with Javanese specimens, encroach further upon the patience and good humour of the readers of this Magazine.—A. G. BUTLER, 17, Oxford Road, Ealing: Dec. 5th, 1872.

[This controversy must now cease.—EDS.].

New sugaring lamp.—It may interest those who do much in sugaring to hear that I have lately had a new lamp constructed, which has answered admirably. It is easily trimmed without soiling the fingers, burns with a bright white light, and is in every way far more cleanly than an oil lamp.

It was made for me by Messrs. Hinks and Son, Birmingham, the lamp being a "sponge spirit" one, burning benzoline. The wick is round, and is lengthened or shortened by means of a rack and pinion with a milled head. Altogether it is a great success.—GEO. NORMAN, Cluny Hill, Forres, N.B.: November, 1872.

Haggerstone Entomological Society.—The fifth Annual Exhibition of the above Society took place at the Society's Rooms, 10, Brownlow Street, Haggerstone, on the evenings of Thursday and Friday, November 14th and 15th, when, in spite of the extremely inclement weather, there was a very fair attendance of visitors: the exhibition, if not excelling, being in no respects inferior to those of preceding years.

Amongst the many rarities exhibited, were specimens of *Vanessa Antiopa* (eight, taken this season), *A. Lathonia*, *C. fraxini*, *Z. meliloti*, *N. albulalis*, *C. erythrocephala* (var. *fulva*), *D. galii*, *A. Selene* (remarkable var.), *C. dominula* (black var.), *C. caja* (black var.), &c., &c. A novel feature in the exhibition was contributed by Mr. E. G. Meek, and consisted of a complete set of entomological apparatus. Mr. F. Bond also very kindly lent several cases of extraordinary varieties from his extensive Ornithological collection; Dr. Knaggs exhibited several interesting microscopic objects, illustrative of the difference on the scales of various genera of Butterflies; and Mr. Cooke, with his usual kindness, contributed several large cases of magnificent exotic *Lepidoptera*, which excited great admiration.

ENTOMOLOGICAL SOCIETY OF LONDON, 18th November, 1872.—H. W. BATES, Esq., F.L.S., &c., in the Chair.

N. Greening, Esq., of Warrington, was elected a Subscriber.

* In other respects, these two insects are as much alike as in most cases of actual mimicry.—A. G. B.

Mr. S. Stevens exhibited the specimen of *Vanessa Antiopa* captured by Mr. Hewitson near Weybridge on the 1st November, as recorded by Mr. Hewitson in this Magazine.

Mr. Howard Vaughan exhibited the example of *Crambus verellus* captured by Mr. C. A. Briggs at Folkestone, also recorded in this Magazine.

Mr. Meek exhibited *Nephopteryx argyrella*, a species of *Phycidæ* new to Britain, said to have been captured by Mr. Button near Gravesend. He also exhibited varieties of several species of British *Lepidoptera*.

The Secretary read a letter from Mr. A. R. Wallace concerning the ravages committed in Dr. Spence's collection of South American mosses and lichens by some small insect, which, according to the exuviae, was probably some species of *Tineina*.

Mr. Meldola exhibited a beautiful drawing of the dark variety of the larva of *Acherontia Atropos*.

Mr. Müller read notes on the entomological papers contained in the 'Abhandlungen der schweizerischen naturforschenden Gesellschaft' from 1823 to 1864.

Mr. W. A. Lewis read a paper intended as (in part) a reply to that read by Mr. Dunning at the previous meeting, in which he stated that the difference between Mr. Dunning and him was entirely one of words, and repeated his charges against Dr. Hagen.

2nd December, 1872.—Prof. WESTWOOD, M.A., F.L.S., President, in the Chair.

The following gentlemen were elected:—M. Henri de Saussure as Honorary Member; M. E. Pictet as Foreign Member; and Messrs. A. Phipson and G. W. Bird as Ordinary Members.

Prof. Westwood exhibited a drawing of a variety of *Pyrameis cardui* captured many years since by the late Mr. Desvignes on Margate sands. Also drawings of *Strepsiptera* intended to illustrate Mr. S. S. Saunders' recently published work on those insects.

Mr. Bond exhibited a specimen of *Lycæna Ægon* having the right-hand wings plain brown, and those on the left-hand blue; at first sight it had the appearance of a hermaphrodite, but was, in reality, a female combining the two forms of that sex: also varieties of *Notodonta dodonea*, *Acronycta megacephala* (black), and *Miselia oxyacanthæ*. He further exhibited a fine new British species of *Ichneumonidæ* (*Anomalon fasciatum*) bred by Mr. Mitford from the larva of the supposed variety of *Lasiocampa trifolii* from Pomsey.

Mr. F. Smith, in answer to a question put to him by Major Munn as to "whether Queen-Bees ever sting," stated that he had never been stung by one, and Prof. Westwood said this was also his experience.

Mr. Champion exhibited specimens of *Thyamis distinguenda*, Rye, and *Lithocaris picea*, Kraatz, recently described and noticed in this Magazine.

Mr. Müller read notes on the manner in which the ravages of a *Nematus* on *Salix cinerea* are checked by *Picromerus bidens*, L.

Mr. Dunning read supplementary notes on the genus *Acentropus*.

Mr. F. Bates communicated Descriptions of new species of *Heteromera* belonging to the family *Tenebrionidæ*.

Mr. Baly communicated the first portion of a Catalogue of the *Phytophaga* of Japan, in part drawn up from the materials collected by Mr. George Lewis.

Mr. Trimen communicated a paper on new species of South African Butterflies; the insects were exhibited.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 5).

BY F. BATES.

ULOMIMIMUS, *nov. gen.*

At once to be distinguished from *Antimachus* and *Uloma* by the anterior tarsi being dilated and clothed beneath with a brush of dense, short hairs, the penultimate joint much smaller than the preceding; and by the anterior tibiæ being strongly triangularly dilated, and furrowed above for the reception of the tarsi in repose. Mentum cordiform, densely pilose; last joint of labial palpi elongate-oval, slightly attenuate at apex, that of the maxillary elongate-triangular, and obliquely truncate at apex; antennæ short, joint 3 longer than the following, 5—10 more or less transverse, perfoliate, equal at each side of the antennal axis, the 11th very large, rounded; head immersed in the prothorax to the hind margin of the eyes, nearly concealing the neck; labrum strongly transverse, slightly emarginate in front, the angles rounded; epistoma produced beyond the level of the insertion of the antennæ, emarginate in front, the angles rounded, the suture well marked by an impressed line angular at the sides; prothorax a little wider than long, moderately convex, sides rather sharply contracted in front, widest before the middle, thence gradually narrowed to the base, apex rather strongly (and slightly sinuously) emarginate, front angles prominent, base almost squarely truncated, the hind angles forming obtuse angles, faintly margined at the base and apex (obsoletely so at the middle of the latter), more strongly at the sides, without pit or excavation anteriorly; scutellum large, triangular, the sides sinuous; elytra but little wider at the base than the base of the prothorax, moderately convex, sub-parallel, base slightly emarginate, humeral angle distinct; epipleural fold entire, but very narrow behind; legs robust, the four posterior femora compressed; tibiæ strongly compressed, the anterior strongly and sinuously dilated from near the base to the apex—which is four times the width of the base; superiorly, at the inner side, channelled for the reception of the tarsi in repose, the apical half densely pilose within, the outer margin entire (*i. e.*, neither dentate nor serrate), longitudinally keeled on the under face, the keel raised up in the middle into a broad pointed tooth, exterior to this keel the under-surface is studded with short, spine-like teeth, which, close beneath the margin—both lateral and apical—are equidistantly ranged in line; the four hind tibiæ are triangular, the outer apical angle produced; excepting at base and apex, they are closely and coarsely punctured and hispid. inner margin

ciliate with long hairs; spurs robust, the inner one nearly double the length of the outer: anterior tarsi expanded, pulvillate beneath, pilose at the sides and more sparingly so above, the penultimate joint much smaller than the preceding; the four posterior somewhat elongate, slender, pilose, the penultimate joint smaller than the preceding, the 1st joint equal to the last in the intermediate, longer than the last in the posterior; mesosternum strongly declivous; prosternal process declivous behind, the apex slightly recurved: intercoxal processes sub-truncate at the apex.

This genus would seem, in a measure, to form the passage between *Alegoria* and the true *Ulomides*: it should, I think, be placed between *Alegoria* and *Antimachus*; this would necessitate a slight modification of Lacordaire's arrangement of the genera.

U. INDICA, *sp. n.*

Oblong, sub-parallel, moderately convex; brownish-black, shining, the mentum, antennæ, palpi, tarsi, labrum, and margins of epistoma ferruginous, the legs chestnut-red: head coarsely and closely reticulate-punctate; prothorax punctured—sparsely on the disc—the punctures large, deep, rounded, and partly filled in with an apparent exudation of an ashy tint; scutellum smooth: elytra with nine (including the extreme marginal one) fine but deep striæ, and a short scutellar one, the striæ punctured (the punctures being much wider than the striæ, the elytra appear crenulate-striate), the 4th and 5th striæ shortest and united at some distance from the apex; intervals convex posteriorly, very minutely and sparsely punctured; pro- and mesosterna, flanks of pro- and mesothorax, and base of epipleural fold, strongly and closely punctured; metasternum, abdomen, and femora sparingly punctured, abdominal joints rugulose at the base.

Long. corp. 4 lin.

Hab.: East India; one example.

The peculiar punctuation of the prothorax, as described, contrasting with the rich shining brown-black of the surface, imparts quite a marked character to this species.

NOTE.—*Alphitobius* (*Heterophaga*) *lateralis*, Bohem., belongs to the genus *Eutochia*, Le Conte.

SPILOSCAPHA, *nov. gen.*

Near *Scaphidema*: differs in having the head longer, sub-trapezoidal (not rounded) in front; the eyes narrower, laterally more prominent; labium shorter; mentum much shorter, transverse; last joint of maxillary palpi stouter, sub-securiform; antennæ much stouter, joint 3 decidedly longer than 4, 5 to 10 strongly transverse, more compact, less triangular; prothorax rounded at the sides, less contracted in front, anteriorly compressed, the fore angles less prominent, more depressed; the sterna more prominent and convex; the prosternum compressed in front before the coxæ; prosternal process more prominent behind, the lateral edge not reflexed or thickened;

mesosternum more vertical, and more clearly and deeply excavated in front, more closely receiving the prosternal process; intercoxal process not quite so broad, the apex less broadly truncated, situated on a lower plane than the metasternum.

The above differential characters will amply suffice to distinguish this genus from *Scaphidema*; and from all the other genera of the sub-family it may be at once distinguished by its broad, truncated intercoxal process.

S. CRASSICORNIS, *sp. n.*

Oval, sub-depressed, testaceous-red, shining; antennæ, save the basal joints, shining black; head entirely red, a slight impression at each side the front, rather strongly punctured, slightly rugosely so behind; prothorax finely punctured, with four large black spots, two at front, at each side the middle, somewhat triangular, and two squarer, at each side the middle of the base,—these are more or less broadly united two by two, leaving a somewhat triangular space at the sides anteriorly, and enclosing a discal space of a pentagonal form, its apex directed to the front; the reflexed margins entirely testaceous-red; elytra rather strongly seriate-punctate, the intervals very finely and sparsely punctulate, having a large black patch at each side the scutellum, another, smaller, on the shoulder, and two broad, transverse bands, one median, the other sub-apical, neither of which extend to the suture; reflexed margins entirely testaceous-red; under-side, mouth organs, and legs shining reddish-brown; ordinarily, the sterna are entirely deep black, but in one of my examples the prosternum is reddish-brown.

Long. corp. 2½ lin.

Hab.: Sydney, New South Wales; four examples.

Platydema thallioides, Pascoe, from the description, should be very near to, if not identical with, this species.

HOPLOCEPHALA AMAZONICA, *sp. n.*

♀. Shining reddish-brown, epistoma (entirely), head in front, and legs ferruginous; antennæ and mouth organs ferruginous-yellow; head rounded in front, rather strongly and very closely punctured, front with a well-marked triangular depression, a small tubercle within, and close to, each eye; prothorax angular at the sides, *i. e.*, rapidly expanded to the middle, or very slightly beyond, thence abruptly, but rather more curvedly, contracted to the hind angles, which are rounded; elytra distinctly transversely rugulose.

Long. corp. 2¼ lin.

Hab.: Santarem, Lower Amazons; one example, ♀.

Differs from *H. armata* (Cast. and Brullé) by the lighter colour, the stronger and much closer punctuation on the head, the well-marked triangular frontal depression, the somewhat differently formed prothorax,* and the more decidedly transversely rugulose elytra.

I have not seen *H. Hoffmannsegi*, C. and B., but, as its describers state the head to be finely punctured, and the colour entirely brown, it should be a different species from the present one.

* In *H. armata* the sides of the prothorax are expanded from the apex to decidedly beyond the middle, and from thence are broadly rounded to the base, almost completely effacing the hind angles.—F. B.

H. CASTANEA, sp. n.

♂. Entirely glossy castaneous, the prothorax more or less dappled with dusky-black; antennæ, legs, and organs of the mouth yellowish-ferruginous; head finely and sparsely punctured, horned (and epistoma tubercled in front) as in *H. armata*; prothorax very minutely and distantly punctulate; the punctuation on the elytra is similar to that on *H. armata*, but much fainter and more dispersed; pro- and mesosterna as in *H. armata*.

In the ♀ the horns are represented by two large broad tubercles, there is also a strong foveate depression on the middle of the crown, and the epistoma is simple.

Long. corp. $3\frac{1}{2}$ lin.

Hab.: New Granada; two examples, ♂ and ♀.

Differs from *H. armata* by its larger size, lighter colour, and much finer and more sparse punctuation.

H. LATERALIS, sp. n.

♂. Glossy, prothorax and scutellum rufo-castaneous, the former dappled with dusky-black, having the appearance of polished mahogany; elytra pitchy-black, with the margins, base, and for one-third the length of the suture, rather broadly rufous; head rounded in front; antennary orbits slightly reflexed; epistoma not reflexed—and with two conical tubercles—at the front; horns rather slender, sub-cylindric, distant at the base, directed forwards, slightly arched, slightly convergent; the head, between the horns, is slightly concave, the usual deep, rounded excavation on the middle, behind the horns, is in this species wanting, or is only slightly represented by a faint, rounded depression; the eyes are less prominent than usually obtains in this genus, and are somewhat narrowed posteriorly, above, by a slight expansion of the cheeks,—they are thus intermediate in form between typical *Hoplocephala* and *Evoplus*; prothorax moderately convex, arcuate-emarginate in front, fore angles distinct, sides almost regularly rounded, more contracted at apex than at base, indistinctly, minutely, and distantly punctulate, a foveate, punctured, sub-marginal depression at each side, near the middle; elytra seriate-punctate, intervals rather broad, flat, smooth, indistinctly punctulate; under-side dull red, mouth organs and legs clear red, antennæ darker; prosternal process lanciform, terminating behind in a slightly recurved point; mesosternum in front sub-horizontal, sub-vertical, deeply and clearly excavated.

♀. Epistoma simple, horns represented by tubercles, eyes (above) broader, not contracted behind by an expansion of the cheeks, the punctured fovea at each side the prothorax obsolete.

Long. corp. 4 lin.

Hab.: "Colombia;" two examples, ♂ and ♀.

A very distinct and handsome species, and remarkable by the ♂ not having the usual deep excavation on the vertex.

NOTE.—*Hoplocephala* (*Neomida*) *baladica*, *elongata* (= *sulcata*), and *striata*, Montrouzier. These three species, as represented in the Collection Doué, belong:—the 1st to the *Helopides*, and is identical with *Strongylium viridipenne*, Mont.; the 2nd also belongs to the *Helopides*, near (I think) *Isopus*; and the 3rd is a *Platydema*. Judging from description, *Platydema oriticum*, Pascoe, = *P. striatum*, Montrouz. I have received this species from New South Wales, as well as from New Caledonia.

A LIST OF *ENDOMYCHIDÆ* COLLECTED IN JAPAN BY GEO. LEWIS, ESQ.
WITH DESCRIPTIONS OF NEW GENERA AND SPECIES.

BY THE REV. H. S. GORHAM.

Among the insects collected by Mr. G. Lewis in the Japan islands are a few *Endomychidæ*, of which six species appear to be new, and not very close to anything known, and two, as I apprehend, pertain to new genera.

The following is a complete list of the species observed.

ENDOMYCHIDÆ.

Trib. II.—*DAPSINI*.

ANCYLOPUS, Costa.

ANCYLOPUS MELANOCEPHALUS, Oliv.

This widely spread species extends from Sicily, through Africa, the East Indies, and Malay Isles, to Japan.

"In rubbish heaps, common in all the islands ; generally in great profusion."

CONIOPODA, *g. n.*

Gen. Lycoperdinam simulans, sed antennarum clava triarticulata, coxæ anticæ a prosterno separatæ, et elytra pilosa.

CONIOPODA ORIENTALIS, *sp. n.*

Ovata, ferruginea, parce pubescens antennis pedibusque nigris ; his femorum basi, tarsisque rufis : scutello transverso, triangulari.

Long. corp. lin. $1\frac{1}{2}$ — $1\frac{3}{4}$.

Caput parvum, oculi fortiter granulati, antennæ et tuberculis inter oculos et ad eorum marginem contiguè exortæ ; articulo tertio secundo paulo longiore, 4—8 sub-æqualibus, quadratis, 9, 10, 11 his duplo latiores. Thorax fere transversus, angulis anticis deflexis, posterioribus acutis, striâ marginali integrâ, sulcis basalibus brevibus fortiter impressis ; medio leviter punctatus. Elytro apicem versus attenuata, pube brevi concolore parce vestita, leviter crebrius punctata, apice striâ suturali medio haud attingente. Pedes nigri, femorum basi tarsisque rufis, tibiis piceis, basi apiceque dilutioribus.

Two specimens ; Hiogo. "Distributed in Nipon and Kushiû."

I have a specimen differing but slightly from the above insect, labelled (as from North America), "*Epipocus ferrugineus*," which is, however, neither an *Epipocus* nor a *Lycoperdina*.

LYCOPERDINA, Lat.

LYCOPERDINA DUX, *sp. n.*

Oblongo-ovata, picea, nitida, omnium parcius subtiliter punctata, thoracis elytrorumque marginibus dilutioribus, scutello transverso, antennarum articulo penultimo intus triangulariter dilatato.

Long. corp. lin. $2\frac{3}{4}$ —3.

"Frequent in puff balls under trees; Maizasau hills, Hiogo." The largest species in the genus known to me.

LYCOPERDINA MANDARINEA, Gerst.

Two specimens, ♂ ♀, with the above, and one from Nagasaki.

SAULA, Gerst.

SAULA NIGRIPES (?).

Nagasaki. "Distributed in Nipon and Kushiu."

This differs a little from a specimen from Ceylon, the base of the antennæ are black, and the whole insect rather more shining; but I see no structural difference.

MYCETINA, Muls.

MYCETINA AMABILIS, *sp. n.*

Oblongo-ovata, nigerrima, nitida, elytris maculâ scutellum versùs hamatâ, duabus alteris parvis ante apicem, tarsisque rufis.

Long. corp. 2½ lin.

Caput crebre subtilissime punctatum, tuberculis antenniferis ad antennarum insertionem testaceis. Antennæ nigrae, articulo secundo piceo, tertio permulto brevior, 3—5 inter se sub-æqualibus, 6—8 brevioribus, latitudine haud longioribus, ultimo testaceo. Thorax fere glaber, margine reflexo, angulis posticis acutis, basi sulcis obliquis utrinque sat fortiter impressis, marginato ac depresso. Elytra creberrime, subtilissime punctata; punctis ad apicem fortioribus. Pedes femoribus leviter incrassatis nigris, apice summâ, tibiarum basi, tarsisque rufis.

Nagasaki, in agarics rare: three examples from Ipongi; in one of these the apical spots are wanting.

MYCETINA ANCORIGER, *sp. n.*

Breviter ovata, nigro-picea, nitida. Elytris vittâ humerali prope suturam productâ, margine tenui, apiceque indeterminate castaneis, parcius sat profunde punctatis. Antennis crassiusculis.

Long. corp. 1½ lin.

Caput tuberculis antenniferis et antennarum basi piceis, his articulo 2^{do} tertio dimidio brevior, 3—5 latitudine paulo longioribus, 6—8 sensim crassioribus, 9—11 fortiter transversis, apice summâ ferrugineâ. Thorax longitudine duplo brevior, marginatus, sulcis basalibus arcuatis. Scutellum piceum. Elytra thorace parum latiora. Pedibus piceis, genibus tarsisque dilutioribus.

Nagasaki, with the preceding, and also at Hiogo and Yokohama.

STENOTARSUS, Perty.

STENOTARSUS NIGRICLAVIS, *sp. n.*

Ovatus, rufo-ferrugineus, pube brevi concolore vestitus, crebre punctatus, antennis (basi excepta) pedibusque nigris; illis clavâ brevi, articulis 9 et 10 transversis, ultimo ovato; his tarsis rufis. Long. corp. 1½ lin.

Near *S. claviger*, Gerst., in the section without punctured striæ; but the antennæ have the club with joints very short for a *Stenotarsus*, and the punctuation is finer and closer than in *S. claviger*.

In rubbish heaps: probably occurs throughout the islands.

Trib. IV.—ENDOMYCHIDÆ ADSCITI.

PANAMOMUS, *g. n.*

Antennarum clava triarticulata, articulo nono decimo subæquali. Pronotum amplum, basi bisulcatâ. Coxæ anticæ contiguæ. Tarsi visibiliter 4-articulati.

Genus Leiesti proximus, at thorace ampliore et corpore convesiore, formâ magis Hylaiæ, distinctum videtur.

PANAMOMUS LEWISI, *sp. n.*

Oblongus, piceus, nitidus, thorace amplo, parce punctato, elytris apicem versus dilutioribus, pedibus antennisque testaceis.

Long. corp. 1 lin.

Caput parvum, epistomate a lined transversâ marginato. Thorax subquadratus, margine laterali sinuata, angulis anticis acutis deflexis, posterioribus fere rectis, sulcis duobus profundis, extus plicâ rectâ determinatis. Elytra striâ suturali leviter impressâ, integrâ, et seriebus sex punctorum haud conspicuis. Scutellum magnum, semicirculare.

Nagasaki; a single example in fungoid growth on a Spanish chestnut: 1866.

Rusper, Horsham: *January, 1873.*

DESCRIPTIONS OF NEW SPECIES OF COLEOPTERA FROM CHILI.

BY EDWYN C. REED.

GYRIOSOMUS KINGI, *sp. n.*

Niger, nitidulus, sub-parallelus, sub-planatus; pronoto transverso, antice arcuatim emarginato, marginibus lateralibus reflexis, postice prope basim sulco arcuato impresso, angulis posticis productis; prosterno in medio postice producto; elytris basi punctis magnis irregularibus impressis, sulcisque latis, cinereo-pubescentibus, obliquis, ornatis.

Long. corp. 16—19, lat. 7—9 mill.

Hab.: North Chile.

I have compared this insect with the fourteen species of *Gyriosomus* in the National Collection, and with the descriptions of five or six other species supposed to be Chilian, and I find it differs from them

all. It was taken by Mr. Thomas King, in the dry district of Carrizal Bajo, in the province of Atacama, on the southern border of the desert.

• *GYRIOSOMUS AFFINIS*, *sp. n.*

A præcedente staturâ majore, corpore ovato, convexo, pronoto antice parum angustato, postice latiore, angulis omnibus productis, tantum differt.

Long. corp. 20, lat. elytrorum ad basim 9, pone medium 13 mill.

Hab.: North Chile.

One specimen, from the same locality as *G. Kingi*.

CANTHARIS (?) *PHILIPPII*, *sp. n.*

Piceus vel memnonius, capite punctato, in medio maculâ rubrâ notato; pronoto sparse punctato, rugoso, antice sulco trasverso sat profunde impresso; elytris lineis elevatis irregulariter reticulatis, areolas sat magnas includentibus, instructis; abdomine pedibusque nigris.

Long. corp. 18—28 mill.

Hab.: North Chile.

This fine insect was also taken by Mr. King in the above mentioned district. It doubtless may be placed in the genus *Cantharis* as defined by Lacordaire (Gen. des Col. v, p. 676), although there are sufficient differences to separate it generically from *C. (Epicauta) femoralis*, Sol., the other known Chilian species.

NACERDES SAUNDERSI, *sp. n.*

Nigra, cæruleo-micans, pubescens; capite nigro, ore rufo; pronoto rufo, maculis duabus nigris notato, postice attenuato; elytris elongatis, suturâ et utrinque vittâ marginali luteis; ventre nigro; prosterno femoribusque rufis; geniculis, tibiis, tarsis antennisque fuscis.

Long. corp. 8—9 mill.

Hab.: North Chile.

This appears to be the same species as that described by Fairmaire and Germain (Ann. Soc. Ent. France, 1863, p. 268) as *N. Servillei*, Sol. (in Gay, Zool. v, p. 259), and, if so, it is an instance of the numerous cases in which these authors have rendered "confusion worse confounded" by trying to improve Gay's descriptions; for here they have taken an insect which cannot be of the same species as that which Solier had in view when he wrote the description alluded to.

The writings of these authors abound in errors of this description; one of the worst may be found *l. c.* 1858, p. 733, where an elaborate description of a *Stigmodera*, supposed to be *S. chilensis*, Guér., is given. This description was, however, taken from a very dissimilar species,

as they themselves admit *l. c.* 1867, p. 627. I could (if it were necessary) quote more than a dozen of similar errors committed by them in their few papers on the Chilian insects.

LISTRODERES SUPERBUS, sp. n.

Magnus, ater, squamulis minimis aureis vestitus; rostro tricarinato; pronoto antice latiore, suprâ plano, rugis obliquis, confusis, radiantibus, et antice carinulâ medianâ sculpto; elytris vix quam thorax latioribus, obsolete sulcatis, suprâ planis, marginibus lateralibus parallelis, sulcis ante partem declivam utrinque in dentes desinentibus, elytrorum apice emarginato, sub-quadridentato.

Long. corp. absque rostro 22, lat. pronoti 5, elytrorum 6 mill.

Hab.: South Chile.

A single example was taken some years ago by Dr. R. A. Philippi, in the province of Valdivia, and presented by him to the National Museum, with the above M.S. name; but no description of it has, to my knowledge, been yet published. Another specimen was taken by Capt. F. Vidal, of the Chilian Navy, in the province of Llanquihue, in January, 1872.

STENOCERUS VIDALI, sp. n.

Ovatus, pube corticinâ dense tectus; pronoti tergo tridentato, lineâque transversali elevatâ instructo; elytris inæqualibus, ad basim utrinque tuberculosi, tuberculis in medio excavatis, nigro ornatis, ad apicem maculâ triangulari nigrâ ornatis; prosterno nigro.

Long. corp. 7 mill.

Hab.: South Chile.

One specimen, from Llanquihue.

National Museum, Santiago de Chile:

July, 1872.

DESCRIPTIONS OF NEW SPECIES OF AFRICAN *LEPIDOPTERA*.

BY CHRISTOPHER WARD, F.L.S.

(continued from page 148).

CHARAXES ANDARA, n. s.

♂. *Upper-side*: both wings deep black, crossed midway vertically by a white band, broadly suffused on both sides with bluish-grey; beyond the third median nervule in fore-wing this band breaks into four distinct white spots, the two upper ones curving upwards and much smaller; outer margin of fore-wing with small red spots placed between the nervures. Hind-wing with three tails, narrow and rather long, black, with bluish-white streak down the centre.

Under-side: resembles *C. Brutus*, but the markings generally darker, and the white band narrower and more clearly defined.

♀. *Upper-side*: as male, but with the white band broader, and beyond the third median nervule of fore-wing changing to ochreous-red; touching and beyond the extremity of cell an elongated marking, above this a triangular group of five spots, all ochreous-red, the costa edged with the same colour.

Under-side: resembles that of the male.

Expanse, 3 inches. Habitat, Madagascar.

CHARAXES ANDRIBA, *n. s.*

♂. Size and form of *C. Zoolina*. *Upper-side*: ochreous-red, with apex and outer margin of both wings broadly bordered with brown, a brown spot crossing the cell of fore-wing, hind-wing with one tail.

Under-side: light reddish-brown, lustrous at outer margin, both wings crossed by a narrow band of darker brown, edged inwardly with silver, several small silvery markings at the anal angle.

Expanse, $2\frac{1}{4}$ inches. Habitat, Madagascar.

The upper-side of this species rather resembles that of *C. Zoolina*, whilst the under-side is near *C. Neanthes*. I have recently received *C. Zoolina* and *C. Candiope* from Madagascar, the former does not differ from the Natal examples, the latter has the apical half of fore-wing much darker than the Natal specimens, and will probably be the species recently described by M. Lucas as *C. Antamboulou*, and his *C. Antanala* is the same as *C. Cacuthis*, Hewitson.

Halifax: December, 1872.

(To be continued).

BRITISH HEMIPTERA: NEW SPECIES—HOMOPTERA.

BY J. W. DOUGLAS AND JOHN SCOTT.

Family.—*JASSIDA*, Stål.

Genus.—*ATHYSANUS*, Burm.

Species 1.—*CANESCENS*, D. and S.

Pale ochreous. Elytra ashy-grey, farinose, mostly with interrupted fuscous streaks on the nerves.

Head short; above, sometimes, round and on the anterior margin a faint fuscous line; beneath, always, a strong, somewhat broken black line round, but not on, the anterior margin. *Rostrum*, apex black.

Thorax: pronotum transversely crenulate, with three short, longitudinal, fuscous lines not reaching the anterior or posterior margin, one in the middle and

one on each side of it slightly divergent posteriorly, equidistant from the middle line and the side margin. *Scutellum*, posteriorly, with a dusky spot. *Elytra* ashy-grey, farinose, the nerves interruptedly brown or fuscous, the streaks more continuous and darker outwardly than inwardly, being very short next the inner margin, disc almost, and the anterior margin wholly and broadly, clear. *Prosternum*, at the outer side, with two confluent black spots. *Legs* pale ochreous: above, *thighs*, 1st and 2nd pairs with two black spots near the apex, smaller and fainter on the 2nd pair; *tibiæ* with a black dotted line on the inner side, and distant, spinose hairs on the outer margin; 3rd pair, *thighs* with a black line on anterior edge, and a large black spot on the inner edge at the apex (or sometimes two, the upper one less distinct), the apex itself having a strong projecting spine; *tibiæ*, inner margin with a strong black line, and thickly set with short, fine, spinose, ochreous hairs; outer margin with more distant, somewhat curved, ochreous spines, each arising from a black dot; *tarsi* all ochreous, 3rd pair fuscous beneath; *claws* all black. Under-side: 1st pair, *fulcræ*, a large black spot near the base; *thighs*, a longitudinal fuscous line near the anterior margin; 2nd pair, *thighs* with a transverse, geminate spot beyond the middle, and a round one near the apex, black; 3rd pair, as on the upper-side.

Abdomen beneath clear pale ochreous, the lower edge of each segment, next the clear connexivum, with a large, triangular black spot.

Length, 2—2½ lines, ♂ ♀.

NOTE.—The dark markings on the upper surface are frequently in part or wholly wanting, and the farinosity extends on to the pronotum as well as the elytra.

Apparently related to *Cicada argentata*, Fab., E. S. iv, 38, 47.

A few examples taken, in July, among short grass on the Downs, Ventnor, Isle of Wight; also in August, at Birch Wood, and Seven-oaks, Kent.

Species 2.—COGNATUS, *D. and S.*

Yellowish, or with a faint brownish tinge, slightly shining. Elytra pitchy-brown, with pale nerves.

Head: above, a little before the anterior margin a bow-shaped, brown streak, and behind it, in a line with the anterior margin of the eyes (which it does not reach), a broadish, transverse brown streak; near the basal angles a more or less distinct brown spot, enclosed by a curved line, exteriorly; beneath, *face* black; anterior margin, a central line, the apex and about seven fine transverse undulatory lines on each side, yellow. *Antennæ* black, or pitchy-black; 1st joint, base, and apex, pale. *Rostrum* brownish-yellow; apex black.

Thorax: *pronotum* very finely wrinkled transversely; anterior margin in the middle with a small, somewhat lunate, brown patch; from beyond the middle, and extending to the posterior margin, four brown streaks, the two exterior ones slightly diverging and terminating at the basal angles of the scutellum, the two interior are placed on either side of the centre, and are 11-shaped. *Scutellum* slightly depressed in the centre, in which is a brown *fleur-de-lis* shaped character,

having the central shaft divided by an extremely fine yellow line. *Elytra* pitchy-brown, nerves yellow; *corium*—area, adjoining the clavus, pitchy-brown; in the other areas the colouring is more or less interrupted in the middle; apical areas with a spot at the base, and the margin narrowly brown. *Sternum* black; *prosternum*, lateral and posterior margins yellowish-white. *Legs* sordid yellow; *thighs*—2nd pair with a row of black spots on the upper edge; 3rd with three or four spots on the upper-side, next the apex, and on the inside, a short black streak; *tibiæ*—inner margin black, except the base; upper and lower edges of the outer margin with a row of black spots; spines stout, long, brown; apex narrowly black; *tarsi*—3rd pair yellow; 1st and 2nd joints at the apex broadly black; 3rd joint black; apex very narrowly yellow.

Abdomen above black, with a line down the centre, broadest at the apex; beneath entirely black; genital plates, towards the apex, brownish; *connexivum* above white; junctions of the segments narrowly black. Length, $1\frac{1}{2}$ —2 lines.

Scarce. It has occurred in Scotland and Devonshire.

(To be continued).

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 130).

Tortrix icterana.—Altered by Wocke to *paleana*, Hübn. (1790), a much earlier name. This Professor Zeller confirms. But *paleana* is an evident misprint for *palleana*; and Hübner subsequently sunk the name altogether. Mr. Doubleday thinks it identical with the yellow variety of *viridana* (*Suttneriana*, Schiff.). I have received from him a curious variety of this species, having *whitish hind wings*. It is found, not uncommonly, in the South of Germany.

Tortrix viburnana, W.V., Fab.—Wocke alters this to *viburniana*, Fab. ('*Mantissa Insectorum*,' 1787), but this change seems altogether unnecessary, since *viburniana* is evidently a misprint; and Fabricius himself corrected it to *viburnana* in his '*Entomologia Systematica*' (1793).

The larva is sufficiently polyphagous. In addition to the food plants mentioned by Wilkinson, M. Jourdheuille gives joined shoots of *Alisma plantago*, *Ranunculus acris*, *Caltha palustris*, and *Ononis spinosa*; and Professor Zeller tells me that he has bred it from one of the *Umbelliferae*.

Tortrix viridana, Linn.

Tortrix ochreana, Hübn.—Introduced into the British list on the authority of a specimen in the collection of Mr. P. H. Harper, which is said to have been taken in the New Forest.

This specimen I have not seen, but the description and figure of it in the 'Entomologist's Annual' for 1867 agree perfectly with German specimens sent by Professor Zeller.

If I am correctly informed, this specimen was not *captured* by Mr. Harper; and its nativity seems exceedingly doubtful, especially as Professor Zeller refers to it as a South European species. He says:—"I never saw it alive; the specimens I send are from Vienna."

Tortrix Forsterana, Fab. (*adjunctana*, Treitschke, and of Doubleday's List, is a name of later date).—According to Professor Zeller, this species occurs in Germany, in fir woods, among *Vaccinium myrtillus*, on which it seems to feed. With us, it especially favours ivy and privet. It is liable to great variation in size, far beyond Wilkinson's measurements. My Rannoch specimens (♂) are not more than eight lines in expanse, while a ♀ from Dublin measures an inch and a quarter.

Tortrix dumetana, Treitschke.—Professor Zeller tells me that this species is very rare in Germany, and that he stirred his specimens out of a thicket, at Glogau, in which was no oak.

Tortrix heparana, W.V.

Tortrix ribeana, Hübn.—In Staudinger and Wocke's Catalogue, the variety *cerasana*, Hübn., is considered as a distinct species, and Professor Zeller appears to hold the same opinion, as, indeed, any one would, looking only at the general appearance of the variety—its peculiar dull brown colour, broad fascia, and apparently broader anterior wings; but the proof of its identity with *ribeana* seems perfectly satisfactory. Guenée says "nearly all authors have given this (*cerasana*) as a distinct species. I have seen and received many, "but they have always been varieties of *ribeana*, more or less clouded "on the disc of the wing. I have obtained both from the same "larvæ:" and Mr. Doubleday writes—"I have seen the two varieties "in copulation; these and other varieties swarm on a cherry tree in "my yard."

Tortrix cinnamomeana, Treitschke.—All my specimens of this species occurred among oak, and not beech, but this was in a district in which beech is rare. In Epping Forest it seems to frequent beech only.

Tortrix corylana, Fab.

Tortrix transitana, Gn.—This is *diversana*, Hübn., as corrected by Mr. Doubleday in the supplement to his List. On the Continent a

much paler and clearer variety occurs, but is rare. It is dull pale ochreous with a slight olive tinge, and the markings pale olive-brown. I am not aware that this variety has been found in Britain.

Wilkinson is certainly in error in saying that this species occurs generally throughout the country, and is not uncommon. It is usually rare in this country, but Mr. Stainton tells me that in July, 1851, he found it in abundance under elm. Mr. Machin tells me that he has collected hundreds of *Tortrix* larvæ in one of its few localities, but has bred only three or four of this species from them. These fed on birch and willow. I think that Wilkinson's mistake has arisen from the fact that fine males of *T. rosana* have sometimes been mistaken for this species: *rosana* may always be known by the yellow or reddish colour of the apex of its hind-wings, which in *diversana* are entirely fuscous.

Lozotænia sorbiana, Hübn.—Wocke divides *Tortrix* and *Lozotænia* into five or six genera, mixing with them some sufficiently startling species from other groups, but he does not do violence to our judgment so far as to separate them into distinct families.

Lozotænia musculana, Hübn.—From the habits and general appearance of this species, I think it far more appropriately placed here than in the genus *Cnephasia*.

Lozotænia latiorana, Stainton.—Mr. Doubleday sinks this, in his List, as a variety of *costana*, Fab., and in this I am convinced that he is correct. In the few specimens which I have been able to examine, the form of wings is exactly as in *costana*, and precisely the markings of that species may be faintly traced in the male. I cannot see any difference in the satiny gloss of the two forms.

Lozotænia semialbana, Gn.—Professor Zeller tells me that he finds this species on beech.

Lozotænia costana, Fab.—In some parts of the country specimens are found, not uncommonly, in which the whole of the fore-wings is suffused with the fuscous or reddish colour of the fascia. In the Norfolk fens, however, where the insect is exceedingly abundant, this variety seems very rare. I have received it from Birmingham and York.

Lozotænia unifasciana, Dup.

Lozotænia fulvana, Schiff.?, Wilk.—Mr. Doubleday, in his List, correctly substitutes *pyrastrana*, Hübn., but this is superseded by Dr. Wocke in favour of *Podana*, Scopoli ('Entomologia Carniolica,' 1763), a far earlier name. Professor Zeller confirms this correction.

Lozotænia piccana, Linn.—Wilkinson merely mentions this species incidentally at the end of the genus (p. 65), but Mr. Doubleday, having faith in the one known British specimen, retained it in his List; and in July, 1868, I had the good fortune to confirm it by the capture of a specimen on the borders of Hants, as recorded in 'Ent. Mo. Mag.,' vol. viii, p. 272.

As it does not appear to be described in any English work, I append a description made (as my own specimen is also a female, and not very fine) from specimens kindly sent me by Professor Zeller:—

Head, antennæ, and palpi brown. Thorax purple-brown.

♂. Fore-wings pale pinkish-brown, with a rich purple flush; markings chocolate-brown. Basal patch distinct on the dorsal margin, but interrupted in the middle of the wing by a patch of raised pale fuscous scales, which occupies all the basal portion of the costal margin for one-third of its length. Central fascia oblique, narrowest at the costa, and emitting from its external margin a narrow crooked streak towards the apex of the wing. Above this is a slight cloud on the costa. Parallel with the hind margin is a second fascia, dilated at its upper extremity, but not attaining the costal margin. Near the anal angle is a narrow oblique streak. Cilia and hind-wings pale fuscous, with a golden flush.

♀. Altogether paler, the purple flush very faint. Markings similar to those of the male, but much broken up, and confused by streaks and dots emitted from their margins. The streak from the central fascia towards the apex is nearly obsolete, but the costal blotch above it is distinct, forming a flat triangle. The streak from near the anal angle is perpendicular, and, as well as a parallel one given off from the base of the central fascia, nearly crosses the wing, which has altogether a curious reticulated appearance from the number of faint perpendicular lines crossing the nervures. Hind-wings yellowish-fuscous, yellower towards the apex.

According to Zeller, it feeds on *Pinus sylvestris*.

Lozotænia roborana, Hübn.—Corrected in Doubleday's List to *cratægana*, Hübn., under which name Hübner figured the ♀ earlier in his work than the ♂ (*roborana*).

I used to find this handsome species rather commonly in oak and fir woods on the borders of Hants.

Lozotænia xylostæana, Linn.

Lozotænia rosana, Linn.

Norwich: December 12th, 1872.

Note on the occurrence in England of Clytus erythrocephalus, Fab.—Among some British *Coleoptera* recently sent to me for names by Mr. J. Chappell, of Manchester, is an example of the above-named North American species, accompanied by the following note:—"The Longicorn was taken by Mr. Thorpe of Middleton, a Lepidopterist, about a mile or two out of Middleton, in a grassy place, at rest on the "grass." That severe scrutiny of the claims of all wood-feeders to our list is required, will, of course, be conceded by all: but I cannot refrain from observing that, sup-

posing this species were indigenous to the European instead of the American Continent, the above evidence would certainly have warranted us in supposing it British. The species is less bulky than *C. arietis*, with longer and much thinner legs, and entirely ferruginous in colour, with the exception of four yellow bands on the elytra, which are more or less darkened apically.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: *January, 1873.*

Captures of Coleoptera in the Isle of Sheppy, &c.—Although especially devoted to the study of *Lepidoptera*, I have for some time been in the habit of bottling any *Coleoptera* that I have met with, and which I have from time to time consigned to my friend, Mr. Champion; and, although, as might be expected, the greater number have proved to be of universal distribution, a few rarer species have occurred, of which I add a list, which may not be altogether uninteresting. Nearly all the species mentioned have been found during the past season.

In the Isle of Sheppy, I have found *Polystichus vittatus*, occasionally under stones, clods, &c., and once or twice at the roots of trees, when digging for pupæ; *Lionychus quadrillum*, rarely, in a salt-marsh; *Licinus silphoides*, several under stones on the beach, just above high-water mark; *Zabrus piger*, plentiful, running up grass-stems at dusk; *Aleochara sanguinea*, *lata* and *bilineata*, *Oxytoma Waterhousii*, *Homalota pulchra* and *cinnamoptera*, *Sanius intermedius* (very common), *Stenus ater* (not rare), *Cryptophagus affinis* (common), *punctipennis*, and *cellaris*, *Atomaria peltata* and *fuscipes*, *Saprinus rotundatus*, *Throscus obtusus*, *Apion pubescens*, &c., in stack-refuse; *Oxytelus insecatus*, *Phalacrus brunnipes* and *Humberti*, *Syncalyptra hirsuta*, *Sciirtes orbicularis*, *Dolichosoma lineare* (not rare, especially towards evening), *Hylastes obscurus*, *Litodactylus leucogaster*, *Sibynes primitus*, *Apion confluens*, *Bagöus incertatus*, *Erirhinus pillumus*, *Donacia dentata*, &c., by promiscuous sweeping on the tops of the cliffs, in salt marshes, on ditch sides, &c.; *Choleva morio* and *nigrita*, *Cryptophagus setulosus* (common, with swarms of ordinary species), *Triphyllus suturalis* (plentiful), *Tetratoma fungorum* and *Engis humeralis* (4) in fungi on elm trees; *Bledius spectabilis*, common, burrowing in the clay banks of brackish pools, and accompanied by dozens of *Dyschirius salinus* and a few *politus*; *Ochthebius rufimarginatus* and *Bagöus petrosus* (Walton) in refuse on ditch-banks, rarely; *Nilidula 4-pustulata*, common in a dead and desiccated gull, hung up to scare small birds, and which repaid examination for weeks, until I had quite beaten it to pieces; *Dermestes undulatus*, not rare in carcasses on the beach; *Mycetophagus 4-guttatus* and *Phloeophagus spadix*, each singly, crawling on stones in the hot sunshine; *Opilus mollis* and *Clerus formicarius*, also singly, under bark; *Telmatophilus typhae*, common between leaves of *Typha latifolia*, preferring those withered plants which had been attacked by *Nonagria typhae*, and accompanied by a few *T. Schönherri* and *Homalota incana*; *Lucanus cervus*, a remarkably fine ♂, with enormously developed head and mandibles; *Sibynes arenariae*, common in sandy places on the beach, under *Arenaria maritima*; *Apion limonii*, abundant at roots of *Statice limonium*, in a salt-marsh, the ravages which it commits on its food-plant being very obvious; *A. Schönherri*; *Ceuthorhynchideus frontalis*, common on *Artemisia maritima*, along with swarms of *Thyamis absinthii*, and, very rarely, *Mordellistena pusilla*; *Ischnomera melanura*, abundant in the Dockyard, running about on wooden pavement in the sunshine; *Crepidodera chloris*, abundant on willows; *Bryaxis Waterhousii*, rare, under stones on the shore.

Near Chatham, during the past summer, I met with the following, along with many commoner species, in a "trap" formed by a wheel-rut full of water, by the side of a wood path, viz.:—*Homalota hepatica* (1), *Anisotoma dubia* and *badia*, *Cyrtusa paucilla*, *Amphicyllis globus*, *Orobitis cyaneus*, *Chrysomela varians*, *Psylliodes dulcamaræ*, and *Mniophila muscorum*. By casual sweeping, I have taken *Meligethes umbrosus*, *Aphodius arenarius*, *Dasytes oculatus* (one ♂), *Ceuthorhynchus cochleariæ*, *Miarus graminis*, *Phylæcia cylindrica*, *Pachyta collaris*, *Mordellistena brunnea*, &c. *Baridius picicornis* was common, at roots of *Reseda lutea*, as usual; *Trachypæus spinimanus* (not rare) and *squamulatus*, and *Syncalypta spinosa* (common), at roots of *Helianthemum vulgare* in chalky places; *Eledona agaricola*, plentiful in fungus, and *Mordella fasciata* occurred freely on umbels of *Daucus carota*, &c., one very hot day in July; I also found a few under bark of a fallen and very much decayed tree (apparently a chestnut) in company with *Cerylon histeroideus*.

At Swale, Kent, by cutting tufts, &c., *Dinopsis erosus*, *Stenus ater*, and *Throscus obtusus* have occurred to me.—JAMES J. WALKER, 7, West Street, Blue Town, Sheerness: December 12th, 1872.

Note on swarms of Bruchus.—A ship came ashore here a few days since, laden with beans, which the people said were infested with "bugs:" so I went down to see, and found *Bruchus rufimanus* in much larger quantities than I ever saw beetles before. I was only there about a quarter of an hour, and I got over two quarts of them; they were running all over me, and when I got home and lighted the gas, numbers of them took wing, making a buzzing noise like the house-fly, and seeming to take a delight in settling on my head.—ROBERT LAWSON, 28, Trafalgar Square, Scarborough: November 25th, 1872.

Occurrence of Apatura Ilia in England.—Mr. W. O. Hammond (of St. Alban's Court, near Wingham, Sandwich) brought to the Museum for determination, quite recently, a slight variety of *Apatura Ilia*, taken in the larval state by a young friend of his: finding, however, that *A. Ilia* was not a recorded British species, Mr. Hammond promised to make further enquiries, and send me precise data as to the time and place of capture; he accordingly writes (December 31st, 1872), as follows:—"I told you that I would let you know the particulars of the specimen of *A. Ilia*, which I brought for your inspection. It was caught in August, 1869, by Mr. Arthur Tritton, the son of the Rector of Otford, in Kent, at Aldermaston, in Berkshire, in the larva state, upon the oak; changed, remained a long time in pupa (how long is not stated), and finally produced the imago which you saw. The larva is described as pale green with yellow spots; appearance of the pupa, not remembered. If *Ilia* is a well-determined continental species, then here is a British occurrence. But is it not possible after all that *Ilia* may be simply a variety of *Iris*, oak-fed, while the type is willow-fed—why is *Iris* always about the oak-tops? I merely suggest this: no doubt there is conclusive evidence the other way."

I think the suggestion thrown out by Mr. Hammond is worth following up; it has often struck me as a curious fact that examples of intermediate forms, apparently hybrids, between *A. Iris* and *A. Ilia*, should be so common; it has not yet been conclusively proved that Lepidopterous insects are never affected by their food-plant.—A. G. BUTLER, British Museum: 1st January, 1873.

Vanessa Antiopa in January.—Many of your readers will be interested to hear

that a specimen of the Camberwell Beauty (*Tanessa Antiopa*) was taken here yesterday. A young lady was passing under some trees on her way home from church after morning service, when a large butterfly, which proves to be a Camberwell Beauty, fell in a torpid state, though still living, upon her hat. You have recorded many instances last summer of the appearance of this rare butterfly, whose *annus mirabilis* in England has been 1872: but that it should have favoured us with its presence in January is a most extraordinary fact.—J. N. SIMPKINSON, North Creak Rectory: *January 6th*, 1873. (Extracted from the 'Norfolk Chronicle,' *Jan. 11th*).

Lepidoptera at Guestling in 1872.—Bad as the past season has been, I have met with a few species worth recording, most of them, however, taken near the sea at Pett, a locality which, although it is but two miles distant, I have not as yet properly explored. June 10th—*Cymatophora fluctuosa*: this specimen was worn, but I took a beauty five or six weeks afterwards. July 8th—*Lithosia quadra*, ♂; I took at different times two specimens at sugar, and missed two more. *Cucullia asteris*; took one specimen on the wing, and later in the season found a few larvæ. 11th—*Odontia dentalis*, *Anerastia lotella*, *Homæosoma eluviella*; these were all taken at Pett, the last in good quantity at dusk, on the flowers of *Carduus lanceolatus*: I also took *Pterophorus lithodactylus* among the flea-bane. 13th—*Acronycta auricoma*, one, at sugar; *Rodophea tumidella*, not uncommon. 19th—*Stenia punctalis*; took two specimens at Pett flying with *Cledeobia angustalis*; I could not distinguish between them until they were in the net. *Eupithecia subnotata*, several worn specimens. August 3rd—*Acidalia rubricata* came to light, to my surprise, as I should not have thought this a likely locality for it. September 1st—*V. Antiopa* about this date, as recorded last month (November), p. 138.

I am sorry to have to make the following corrections in former records:—*Phycis carbonariella* (Ent. Mo. Mag., May, 1871, p. 277) should be *P. betulella*; I had quite overlooked the small indistinct tufts of raised scales on the fore-wings. *Eupithecia virgaureata* and *Pterophorus microdactylus* (Ent. Mo. Mag., June, 1868, p. 23) were only *E. castigata* and *P. tephrodactylus*; they were worn specimens about which I had felt doubtful, and were returned from London with the names I recorded. I am sure now that they were wrongly named.—E. N. BLOOMFIELD, Guestling Rectory: *November 7th*, 1872.

On reversed motion of the limbs of Arthronomalus longicornis, Leach (*electricus*, Gervais).—A few weeks ago, I had occasion to watch the proceedings of this Centipede, while dealing with its living prey, the large fuscous *Podura* so abundant among decaying vegetable matter.

Happening to disturb a flower-pot, I observed the creature rapidly sallying out of the interstice between the pot and saucer. It carried the caudal segment ahead and slightly raised, while the last pair of feet were acting as antennæ, their tips being directed forward, and occupied with alternatively feeling their way. As each succeeding segment appeared, I found the attached pair of legs moving forward in the direction of the caudal segment, till at last the head itself made its appearance, carrying in its mandibles a struggling and vigorous *Podura*, which, from its liveliness, I judged to have been seized the moment before.

Desirous of witnessing whether this reversed movement of the Myriapod was momentary, and caused solely by the feeling of insecurity to which the shaking of

the flower-pot must have given rise, or whether it was an action to which the creature resorted in order to overcome the resistance offered by its living burden, and as affording the easiest mode of conveyance, I kept a close watch over the creature while it continued its reverse march over the rim of the saucer, down on the opposite side, across a broad path, and up the rough wall of a cottage. For all this distance, the caudal segment was leading and kept slightly raised, the pair of elongated feet attached to it acting as antennæ, while all the other pairs performed their reversed motion in rythmical succession.

Except in so far as the holding tight of the load was concerned, the head had, so to speak, abdicated its functions for the time, and was simply carried along like any ordinary segment, no external guiding movement of any kind being perceptible to me. When the convoy had gone as far up as I could conveniently reach, I was obliged to secure the Myriapod, but even while I held it between my fingers, it would not part with its prey. On being transferred to a box with a glass cover, it speedily coiled itself up round the *Podura*, and remained in this position, giving me time to ascertain its name.

No interference of mine could afterwards induce the creature to resume its peculiar march: the more I tried to make it shift its position, the closer it drew its coils around its victim.

The preceding observation clearly shows that this Myriapod has the option of reversing the normally progressive action of its limbs into an equally effective, and just as regular, prolonged, retrograde movement, accompanied by the temporary transfer of some of the guiding functions of the anterior parts of the head to the caudal segment.

The bearing of these facts on Mr. Herbert Spencer's theory of compound individuals is self-evident. Mr. Alfred R. Wallace, in his last Presidential Address to the Entomological Society of London, has given a plain summary of this theory, and I cannot do better than repeat this gentleman's remarks that "if the facts and arguments adduced by its learned and philosophical author do make out even a *prima facie* case in its favour, it must deserve the careful and unbiassed consideration of "all who endeavour to solve the problem of the origin of insects."—ALBERT MÜLLER, South Norwood, S.E.: November 11th, 1872.

Note on the "carding" and pinning of insects.—As an old collector, I may be allowed to say a few words on this subject. When I first took up my net—now fully thirty years ago, a friend and I sought advice of the late Mr. J. F. Stephens, and we were by him recommended to *pin everything*. This advice we literally followed, spoiling hundreds of rare things, and entailing upon ourselves the enormous labour of replacing thousands of commoners. Fully thinking that "carding" is by far the best process for our *Coleoptera*, in which nearly all the species may be determined by the upper surface alone, I also think it perfectly indispensable for *Hemiptera* and *Homoptera*, and that it might even be extended to other orders with advantage. Nor do I see that size need be any drawback, in so far as native insects are concerned: even a *Carabus*, when properly mounted on card, is, in my opinion, quite as neat as, and certainly much safer than, when pinned. I find also a great advantage in the "carding" system, in the greater ease with which mouldy or greasy specimens may be cleaned, and, if necessary, remounted; operations nearly impossible to perform on pinned examples without serious damage.

Latterly, I have even tried "carding" Saw-flies, Ichneumons, Aculeate *Hymenoptera*, and *Diptera*, with results which I think are encouraging, as it leaves free for examination the sculpture of the thorax, which is often of the greatest importance in determining the species. It is by no means absolutely necessary that all the specimens should have their wings fully expanded; they answer every scientific purpose, and look very neat, if mounted on narrow slips of card with the feet and antennæ placed in their natural position. Such species as have important characters on the under-side, can be mounted sideways; that is, the insect laid on its side on the card, the lower antennæ, legs and wings brought out and gummed down: so treated, all parts can be examined, and with greater safety to the specimen than when it is on a pin. Great care, however, must be taken not to use too much gum, or the specimens will be utterly ruined. My way of mounting (say a saw-fly) is as follows:—taking a slip of card, somewhat larger than necessary, I lay a thin line of gum down its centre, on which I lay the fly, having first brushed out the antennæ, palpi, and legs; then, bringing out the tarsi, I secure such with a small pellet of gum, doing the same with the antennæ and palpi, and taking care to bring the mouth well forward: should I wish to expand the wings, I now leave the insect until the gum has set, which will be in about twenty minutes, when I bring them forward, securing each by a small drop of gum. With large species, however, it is better not to gum down the wings, but to keep them in place with braces until dry, as they can then be more easily cleaned and re-mounted.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne: Nov. 5th, 1872.

The "new" sugaring lamp.—Any tin-smith can make this lamp out of a common "sponge-lamp," as I mentioned when recommending it for the first time, in April, 1871 (*Sc. Nat.* i. 33), so that any one wishing to try it, need not send to Birmingham for it. I have been using one for *two seasons*, and find that it works well.—F. BUCHANAN WHITE, Eastferry, by Dunkeld: January, 1873.

SOUTH LONDON ENTOMOLOGICAL SOCIETY.—The members of this Society gave their first Exhibition on Thursday, December 12th, 1872, and the result was highly creditable to their energy and perseverance. Above thirty members contributed cases of insects.

The chief features of the Exhibition were: 1—the cases of *Lepidoptera*, which contained many rarities (far too numerous to specify), a large number of remarkable varieties, and long series of bred specimens, amongst which, Mr. Wellman's collection of *Acidalia* was especially remarkable; 2—some very interesting cases of *Coleoptera*, *Diptera*, *Hymenoptera*, and *Hemiptera*, and we hope, on a future occasion, to see these orders even more largely illustrated; and 3—a collection of *Phryganidæ*, *Heimerobiidæ*, &c., kindly lent by R. McLachlan, Esq.

The half-yearly meeting of the Society took place on December 18th, when it was announced that for the future the meetings would be held on each Thursday, from 8 to 10 p.m., at the Assembly Rooms, 104, Westminster Bridge Road, S.W. During the past half-year, the number of members has increased from 35 to 70; and valuable donations have been received from Sir John Lubbock, Bart., M.P., and W. A. Lewis, Esq. Mr. Wellman was re-elected President of the Society, and Mr. Farn was elected Vice-President.

ENTOMOLOGICAL SOCIETY OF LONDON, 6th January, 1873.—Prof. WESTWOOD, M.A., F.L.S., President, in the Chair.

Mr. G. C. Champion (formerly a subscriber) was elected a member, and Mr. Cole a subscriber.

Mr. McLachlan exhibited (on behalf of Mr. George Lewis) a magnificent collection of coloured drawings of the transformations of twenty-four species of Japanese *Sphingidæ*, executed by a native artist employed by Mr. Lewis.

Prof. Westwood exhibited the beautiful net-work cocoon of a species of small moth from New Granada; it was suspended from a leaf, to which was also attached one of the *Hesperiidæ*, strongly attacked by fungoid growth.

Mr. E. Saunders exhibited two species of *Buprestidæ*, from the Pelew and Caroline Islands respectively, apparently pertaining to a new genus, but having all the external characters of species of *Chrysodema* from the East Indian Islands.

Mr. Champion exhibited two rare British species of *Coleoptera*, viz., *Nanophyes gracilis* and *Apion sanguineum*, the former recently noticed as new to Britain in this Magazine.

Mr. Müller called attention to a recently issued government report respecting the ravages of the vine-scurge (*Phylloxera vastatrix*) on the continent of Europe. Professor Westwood remarked that this insect was noticed by himself in a paper read before the Ashmolean Society, at Oxford, in 1862, concerning its occurrence in England.

Dr. Sharp communicated a paper on the Water-Beetles of Japan, chiefly drawn up from materials collected by Mr. George Lewis.

Mr. Wollaston communicated a description of a new genus (*Pseudotarphius*) of *Colydiidæ* from Japan; and also a paper on the *Cossonidæ* of the same islands, in which he described eighteen species (all new) contained in fifteen genera. Mr. Wollaston stated that, so far as regards the group under consideration, he felt convinced that the ordinary European types do not prevail in that part of Japan investigated by Mr. Lewis, but are replaced by kindred or representative forms. A discussion took place, in which Messrs. Bates, Pascoe, Westwood, &c., took part. Mr. Pascoe thought the Japanese fauna might be regarded as "satellite," like that of Madagascar. Mr. Bates asked that judgment be suspended until further evidence be afforded, and said that, although many European species are also found in Japan, the collective faunas of the two regions are totally different.

Review.

A CATALOGUE OF BRITISH HYMENOPTERA; Part 2, compiled by the Rev. T. A. MARSHALL. Published by the Entomological Society of London (1872). Pp. viii. and 136. Price 2/(-).

The readers of this Magazine are aware that a General Catalogue of the Insects of the British Isles is in course of publication by the Entomological Society. The Neuroptera, by Mr. McLachlan, appeared in 1870; the Aculeate Hymenoptera, by Mr. F. Smith, in 1871; and these have been followed, in 1872, by a second instalment of the Hymenoptera, including the *Chrysididæ*, *Ichneumonidæ*, *Braconidæ* and *Evaniidæ*. Of *Chrysididæ* we have 22 species, arranged in six genera, and of *Evaniidæ* only 7 species, distributed among four genera; but these families form a very small portion of the Catalogue now under consideration, for the *Braconidæ* number 125 genera

and 439 species, whilst the *Ichneumonidæ* are 136 genera and 1186 species. Thus the List specifies and gives the synonymy of no less than 1654 species, a considerable proportion of which are now for the first time indicated as British. Such works as those of Dahlbom, Gravenhorst, Nees von Esenbeck, and Wesmael, of Förster, Holmgren and Thomson, shew that this group of insects has been far more extensively and thoroughly studied on the Continent than in this country; but the names of Haliday and Desvignes deserve to be remembered, and their mantle appears to have fallen on the Rev. T. A. Marshall.

In the 4th part of Trans. Ent. Soc. 1872, pp. 259—264, published in December, will be found some notes on this Catalogue by Mr. Marshall himself; and the limited space at the disposal of the present writer suggests to him the propriety of confining his remarks to a running commentary on the compiler's notes.

Mr. Marshall is able to make the satisfactory statement that, with the single exception of a misprint, *centauræ* for *centauræ* on p. 112, "it is believed that no erratum exists of a kind likely to mislead the reader." When the nature of the work is considered, this is marvellous, but to a great extent it is attributable to the author's caligraphy. Having seen the MS., I can only regret that it could not be published in *fac simile*.

With regard to the names adopted and their orthography, the general correctness of the received names has been found to compare favourably with other Orders. Few changes of nomenclature have been introduced; the law of priority has been observed, but the observance has been tempered with discretion; "priority has been a hobby with the compiler, but the hobby has not been ridden to death;" cases of mis-spelling have been corrected, but the identity of the name has been preserved; where the faulty construction of compound names was found to admit of no simple remedy, the incorrectly-formed compounds have been retained, without attempting to improve what is radically wrong, or what, if touched at all, must be improved away; adjectival specific names have been made to agree in gender with the generic name. In short, the principles upon which the Catalogue has been prepared appear to the present writer to be sound principles, though naturally there may be room for doubt as to their correct application in particular cases.

On glancing over the pages, the following queries have occurred to me. On p. 2, Panzer's *Omalus* is properly changed to *Homalus*; why, then, on p. 50, is Stephen's *Enicospilus* not changed to *Henicospilus*, but left without the initial *H*? On p. 8, *Ichneumon periscelis* is retained; why, then, on p. 11, is *I. caloscelis* changed to *caloscelus*? On p. 50, *Ophion* is made of neuter gender, and, to agree therewith, Mr. Marshall has altered *obscurus*, *luteus*, &c., into *obscurum*, *luteum*, &c.; but why this change? Surely *Ophion* is masculine, as much as *Tryphon* (p. 73) or *Bracon* (p. 96); the fabulous *Ophion* of Sardinia was made masculine both by Greeks and Latins, and, as the proper name of one of the giants, or of the father of the centaur Amycus, *Ophion* is a masculine name: moreover, if the word were *Ophion* (neut.), not *Ophion* (masc.), the genitive case would be *Ophii*, not *Ophionis*, and there would be difficulty in arriving at the name *Ophionides*, which Mr. Marshall adopts for this sub-family of *Ichneumonidæ*. On p. 132, are the specific names *leptogaster* and *appendigaster* substantives or adjectives? If the latter, should we not read *Dacnusa leptogastra* and *Evania appendigastra*? Or should the mongrel hybrid *appendigaster* be kicked out with his tail drooping? Again, on p. 51, is *xanthopus* a substantive,

or an adjective agreeing in gender with the neuter *Anomalon*? If an adjective, and *Anomalon xanthopus* be right, ought we not, on p. 65, to find the group *Homalopodes* instead of *Homalopi*; or, if *Homalopi* be right, ought we not to have *Anomalon xanthopum*? Generic names like *Desmiostoma* (p. 123) or *Schizoloma* (p. 51) we know from a former volume of the Magazine to be regarded by Mr. Marshall as adjectives and to be properly made feminine; accordingly, the *S. amictum* of Wesmael becomes *S. amicta*. On p. 119, the name *Zelee* is made masculine; but *Z. chlorophthalma* seems preferable to *Z. chlorophthalmus*. On p. 121, was the change of Haliday's *Biosteres hæmorrhæus* into *hæmorrhous* necessary? And the introduction of Haliday's name leads to the enquiry whether *Halidayus* or *Halidaius* is the proper latinized form? To the present writer, "*Halidayus*" seems impossible, and he would therefore write *Apanteles Halidaii* in place of Mr. Marshall's *A. Halidayi* (p. 105). In many other cases of these possessive personal names, do not nomenclators frequently introduce an *i* too many? thus, in *Chrysis Ruddii* (p. 3), *Cteniscus Curtissii* (p. 77), *Biosteres Wesmaëlii** (p. 121), why the second *i*? If required in these cases, why not in *Ellampus Panzeri* (p. 1), *Ichneumon Coqueberti* and *Bohemani* (p. 6), and *Euryproctus Waltoni* (p. 68)? Upon what principle have we *Pezomachus Ratzeburgi* and *Kiesenwetteri* (p. 47) coupled with *P. Neesii* and *Hoffmanseggii*? It is submitted that "*Marshall's Ichneumon*" will be rightly dubbed *Ichneumon Marshalli*, the genitive case of "*Marshallus*," not "*Marshallius*;" and that the termination *-ius* should be reserved for names ending in *e*, *i*, or *y*. Thus *Stibeutes Bonellii* (p. 45) is right; but *S. Gravenhorstii* is one jot too long; whilst *Phygadeuon Hopei* (p. 34), *Agrothereutes Hopei* (p. 45), and *Adelognathus Rutheii* (p. 76) might advantageously be spelt *Hopii* and *Ruthii*. Lastly, it is presumed that the specific name of *Aphidius pseudoplatanus* (p. 110) is to be regarded as the genitive case; the genitive *platanus* in lieu of the familiar *platani*, does once occur in a poem entitled "*Culex*," which is sufficient authority for any Entomologist.

But let us pass beyond the husk of nomenclature to the Entomological kernel. The compiler "would gladly have placed the typical species of each genus first, and the rest in the order of their affinity to that type." But would this have been right? What is wanted is a linear sequence of species, the species at the tail of one genus leading gradually up to those at the head of the next genus, the species at the head of the latter being those which have most affinity with those at the tail of the former, so that the typical species of each genus (or of each genus except the first one of all) would not be the first in the list, but would gravitate towards the centre; the natural order is a gradual progression, a continuous sequence throughout, an unbroken series of steps, not an irregular succession of steps and jumps; by placing the typical species of each genus at its head, a chasm of greater or less width and depth would be placed between every two consecutive genera, which by a different arrangement of the species of both may be entirely or almost bridged over. The species of any genus should be arranged *inter se* on the same principle as the genera of the same family are arranged *inter se*: if the typical species of *Chrysis* is to be placed first in the genus, *Chrysis* as the typical genus of the *Chrysididæ* ought to be placed first in the family. The cataloguer however confesses that, owing to the imperfect condition of the literature relating to this group, and the absence of definite types, he has been unable to follow any uniform principle throughout, but

* By the way, in *Wesmaëlii*, and the genus *Wesmaëlia* (p. 113), why the diæresis? Why not *Wesmaelia*, or *Vesmaelia*?—J. W. D.

has been guided by what he conceived to be the highest principle applicable to each particular case. This is good practical common sense, and we agree that, in the present state of the science, this is all that could be done. Such is the deficiency of our knowledge that in some of the larger genera Mr. Marshall has been driven as a last resource to an alphabetical arrangement of many of the species; for instance, out of twelve dozen species of *Ichneumon*, the last three dozen are given alphabetically, and out of 61 species of *Tryphon* only 13 are classified, which it is presumed must be taken as an indication that little or nothing is known of the residuum than that somebody has published certain names with descriptions, or has announced in some periodical or other the capture in Britain of certain continental species; they remain to be re-discovered by the Hymenopterist of the future, or perhaps to be shewn up as only old friends under different names.

In the selection of citations and references to authors, Mr. Marshall had a difficult task to know where to draw the line, in order to keep the Catalogue within reasonable bounds. In this portion of his work, Gravenhorst would probably be at once his greatest aid and his greatest difficulty. So far as the reviewer can judge, he has acquitted himself of this task with admirable discrimination, his aim having been to "exclude all matter so doubtful as to be useless, and to render the references complete in all cases of certainty." In some cases, perhaps, exclusion might advantageously have been carried further; but, on the whole, inclusiveness, if a failing, is a failing on virtue's side.

The disproportion between the number of genera, as compared with the number of species, in the *Braconidæ* and *Ichneumonidæ*, can scarcely have failed to be observed on reading the first paragraph of these remarks. The 439 species of *Braconidæ* have been divided into 125 genera, only 11 fewer than the number which suffice for the 1186 species of *Ichneumonidæ*. As Mr. Marshall points out, this disproportion is the result of a totally different idea of Genus in different minds, and is mainly due to the labours of Förster. If the *Ichneumonidæ* were handled by a Förster as the *Braconidæ* have been, the 136 genera of our List would become 336 at least. To the specialist or student who limits his range of observation to a single group of comparatively small extent, this multiplication of so-called genera is attractive and convenient; but it may well be doubted whether it is an advantage to the general student, whilst many will think that it is a degradation of the genus, and that the characters upon which the minute sub-division is based are not generic characters at all. But this is too wide a subject to pursue on the present occasion.

In conclusion, I have to congratulate Mr. Marshall on the completion of his tedious task, the Society on having found so able and willing a workman, and British Entomologists generally on the fact that the Society by Mr. Marshall's aid has been enabled to place within their reach a Catalogue of this extremely interesting group of insects. This List ought to be a starting-point for many discoveries, for new species may be found everywhere, if collectors will only take the trouble to capture them. Entomologists who care not for Hymenoptera may do good service; too frequently for the realization of their hopes, our Lepidopterists make the acquaintance of parasitic Hymenoptera; and, if it be too much to expect that they should themselves devote a little attention to their persecutors, they might at least transfer them to Mr. Marshall, who would not consider them beneath his notice.

One word as to the future. It was understood some time ago that the *Tenthredinidæ* stood in the way of an early completion of this Order; but after the splendid instalment that last year has produced, may it not be hoped that arrangements have been made to finish the Catalogue of Hymenoptera in 1873?—J. W. DUNNING, Lincoln's Inn: *January, 1873.*

INSTRUCTIONS FOR THE COLLECTION AND PRESERVATION OF NEUROPTEROUS INSECTS.

BY ROBERT M'LACHLAN, F.L.S.

(continued from p. 176).

Planipennia.

In this division are grouped all the species with complete metamorphoses, excepting the *Trichoptera*, and as the groups are not so sharply differentiated as those previously treated upon, they will be severally considered in separate paragraphs. Several of the families are not represented in Britain. All insects of this division should be pinned and set in the ordinary way. The larger species may be pinned into the collecting box when caught; the smaller can be placed in pill-boxes or glass tubes, and many may be confined in one receptacle, for they seldom damage each other, and have no scales to rub off.

Sialidæ.—The most familiar representative of this family is the abundant *Sialis lutaria* (well known to the angler), which swarms on palings, walls, trees, &c., near water in early summer, and may be picked up with the fingers; its flight is slow and steady, but sufficient examples can always be obtained without the use of a net. It is frequently mistaken for a caddis-fly. Only this genus exists in Europe; but there are other exotic genera, and some of the species of *Corydalidæ* (a genus peculiar to America) are among the largest insects known, some being nearly six inches in expanse of wings, and the males usually provided with enormously elongated mandibles, the use of which is not clearly evident,* as they are harmless insects of nocturnal habits. Another genus, *Chauliodes*, is found both in the old and new worlds; some of the species are very pretty, and many remarkable for the diversified structure of the antennæ of the males. All the genera are aquatic in their early stages.

Raphidiidæ (Snake-flies).—A small group, peculiar to temperate climates, remarkable for the greatly elongated prothorax. The larvæ live under the bark of trees, feeding upon other larvæ, &c. The perfect insects may be taken by beating the boughs over the net, and fir trees are the most favourable for this operation; they may also be occasionally found on the trunks. Their flight is probably nocturnal, for they seldom show any inclination to use their wings when captured in the day-time. Up to the present time they have only been found in Europe, Northern Asia, and Western North America.

* A very interesting account of the metamorphoses and habits of *Corydalidæ* is to be found in the 'American Entomologist,' vol. i, pp. 61—62. It is there stated that one use of these enormous mandibles is to seize the female.—R. McL.

We now come to a series of families or groups remarkable for the beautifully close network of their wings, which, however, gives them no powers of flight equal to that of the dragon-fly, and they are, for the most part, feeble insects easily captured.

Myrmeleonidæ (*Ant-lions*).—A very extensive family, tolerably well represented in Europe, but absent from Britain; furnished with *short* clubbed antennæ. The peculiar habit of the larvæ of many species, viz., that of making pit-falls in sand, wherein to entrap ants and other insects upon which they feed, is familiar to all entomologists. All appear to frequent sandy districts, and some are of very large size and great beauty. Most of them are nocturnal in their habits in the perfect state, and are seldom seen even in localities in which the myriads of pits in the sand formed by their larvæ prove them to be abundant. Their flight is slow and feeble, and they are frequently attracted by light. In preserving them, it is often advisable to run something into the body, as recommended for Dragon-flies, for, although they are not so liable to breakage as are those insects, yet their durability is rendered much more certain if the body be strengthened by artificial means: the point of dislocation most to be feared is between the abdomen and the meta-thorax. Some 300 species are already known, but many of them are difficult to determine, or even to describe, with any degree of satisfaction, and the generic differentiation of the various groups has yet to be undertaken, all done hitherto being only preliminary.

Ascalaphidæ.—Closely allied to the Ant-lions, but distinguished by their *long* clubbed antennæ, which are like those of butterflies; and, in fact, this peculiarity, combined with the gay colours of the restricted genus *Ascalaphus* (which is peculiar to the European fauna), so far deceived some of the earlier entomologists, that—overlooking all other characters—they described them as Papilios. They frequent dry and sandy districts, but the larvæ never make pit-falls. The species of *Ascalaphus* have a habit of ‘dancing’ in the air in the bright sunshine, and their powers of flight are greater than are those of any other *Planipennia*. Most of the less gaily coloured exotic genera are nocturnal or crepuscular, and one species has been noticed as having the habit of hawking after insects round the branches of trees in the evening, much after the manner of Dragon-flies, retiring into the crevices of the bark during the day. All of them rest with the wings closed longitudinally and roof-shaped in repose, with the exception of one American genus, in which they are extended horizontally. With

the long slender-bodied species it is best to insert something in the body. Both these and *Myrmeleonidæ* may be sent home in paper envelopes, as noticed for Dragon-flies, though it is not here so advisable; but if this be done, it is especially desirable not to place them in the envelopes until fully dry.

Nemopteridæ.—One of the most extraordinary groups, the underwings being extremely long and narrow, whereas the forewings are short and broad. The species are not numerous, and next to nothing has yet been recorded concerning their habits: they are peculiar to the old world, and frequent hot and arid situations. The most handsome species are found in the South of Europe. Care must be taken not to injure the long tail-like hindwings, which are sometimes so slender as to be reduced to mere long threads; but several of them have these wings oddly dilated immediately before the tips.

Mantispidæ.—Yet another group not found in Britain, and even feebly represented in Europe. Noticeable for the elongated prothorax (as in *Raphidia*, only that the legs are attached to the anterior instead of the posterior end), and for the remarkably constructed anterior legs, which have very long coxæ, and strongly dilated raptorial femora, the tibiæ and tarsi being much aborted. The exotic species are very numerous. The larva of the European *Mantispa styriaca* has the peculiar habit of living in the nests of spiders, feeding upon their eggs and young; and an allied genus, *Trichoscelia*, found in South America, infests the large papyratious arboreal nests of Hymenopterous insects. This clue may be of service to collectors, especially as most species seem to be rather abundant where they occur, frequenting herbage and undergrowth. Their preservation calls for no particular remark, unless it be to exercise care in dealing with the legs.

Nymphidæ.—A small (chiefly Australian) family, concerning the habits of which we have no information. The typical *Nymphes myrmeleonides* is a large handsome insect, much resembling an Ant-lion.

Osmylidæ.—Represented in Britain (and Europe) by two genera, *Osmylus* and *Sisyræ*, both aquatic in their larva-states, and frequenting rather swiftly-flowing streams. The handsome *Osmylus* is seldom seen on the wing, but may be easily brushed or beaten out of trees overhanging streams. The small *Sisyræ* are often abundant among the herbage bordering streams, and the larva of the common species has

been found in the interior of the fresh-water sponge, but no doubt is not confined to this situation, as the insect is often abundant where there is no sponge. The discovery of the habits of some of the exotic genera must decide the question as to whether they really belong to this family: among these may be noticed the curious Australian genus *Psychopsis*.

Hemerobiidæ and *Chrysopidæ*. (Known as '*Aphis-lions*,' '*Golden-eyes*,' '*Lace-wings*,' and '*Stink-flies*').—Two families, which, in their larva-states, feed upon *Aphides*, often covering themselves with the empty skins of their prey. They may all be beaten out of trees, and are easily captured. Certain species affect particular kinds of trees. Fir-trees are always productive, both because they have species peculiar to them, and afford convenient shelter for others. The species of *Hemerobius* mostly sham death when in the net. The *Chrysopidæ* frequently come to gas-lamps: they are very numerous in species, and mostly of a delicate green colour, the eyes brilliantly golden or coppery when alive. Though amongst the most beautifully delicate of all insects, they are notorious for the power which some species possess of emitting an intolerably disgusting smell of ordure when handled, almost sufficient to cause the most enthusiastic entomologist to fling them away at once, and seek for means whereby to free himself from what may be likened to a concentrated essence of cesspools. Many of them, however, are perfectly inodorous. Some few (e. g., *Chrysopa vulgaris*) corrode the pins very rapidly, and become almost destroyed in the course of a few years. *C. vulgaris* hibernates, and, in winter, assumes a reddish colour. Their cocoons, like small white peas, may be found on the plants where the larvæ have been assisting the horticulturist, and it is a matter of no little astonishment to the uninitiated to observe so large an insect emerge from so tiny a cocoon. Re-set specimens should remain upon the setting boards for a considerable time, much longer than is requisite for the powerful dragon-flies; and care should be taken in relaxing not to allow the water to actually reach the wings, or these members become matted together, and are sure to get torn in endeavours to spread them out.

Coniopterygidæ.—Minute insects, wholly covered with a white, waxy, pulverulent secretion, and which may be beaten from trees, especially firs. Their treatment should be precisely similar to that adopted for winged *Psocidæ*. Some are so small that it is almost impossible to spread the wings, unless the manipulator has already had experience as a Micro-Lepidopterist.

Panorpidæ (*Scorpion-flies*, &c.).—Common amongst herbage, and easily captured on the wing, or swept up with the net. The males of *Panorpa* have the peculiar forcipate dilated terminal segment from which their vulgar name is derived. In setting, some of these males should have the three terminal segments forcibly extended until dry, as otherwise they are curved over the back, and not so easy to examine,—an important point, taken into consideration with the fact that the specific characters mostly lie in these segments. They are highly predacious, feeding upon other insects, and can inflict a momentarily painful wound in the fingers by means of their mandibulate rostrum. *Bittacus* (not represented in Britain) is extremely like a *Tipula*, only with four wings instead of two, and this disguise probably has a purpose, for, in the case of a recently discovered apterous species, it was found that semi-apterous *Tipulidæ* existed in the same locality; they may thus be likened to wolves in sheep's clothing. The legs are of extraordinary length, and, in setting, must be arranged one by one with pins, otherwise they become entangled and easily break. *Boreus* is a genus of small and virtually apterous insects, found only in winter amongst moss, &c., and even sometimes on the surface of the snow. They mostly fall in the way of the Coleopterist when hunting for moss-frequenting beetles, and are no doubt often cast aside as *Acari*, or similar 'rubbish.' Though I cannot explain by what means they jump, it is nevertheless certain that they possess some amount of saltatory powers. The specific characters exist chiefly in the ventral segments of the males, a sufficient reason why they should not be 'carded;' simple pinning is sufficient, or, if time is no object, the legs may be neatly spread out with small pins.

The *Panorpidæ* are aberrant *Planipennia*, and by some are thought to form a passage to the next division.

Trichoptera ("Caddis-flies").

In no group of insects have I acquired so much practical knowledge of the habits and private lives, as in the *Trichoptera*. Although my attention has been gradually directed to the order *Neuroptera* as a whole, yet the Caddis-flies were my earliest favourites, and still constitute my pet division of the order. The days and hours spent in the pursuit of our native species have been—I can safely say—the happiest moments of my life, and I still look back with unalloyed gratification to the year 1859, when, as an enthusiastic pupil of Dr. Hagen, I commenced to collect and study them. Would that I had more companions in the field!

Wherever there is fresh water, either standing or running (so long as it be not habitually dried up by the heat of summer, or poisoned by the refuse of mines and factories, or the sewage of large cities), there caddis-flies will be found. But the immediate vicinity of water is not absolutely necessary, for many of the more powerfully organised species evidently take long nocturnal flights, and are often dislodged during the day in localities very far from water. I remember once finding numbers of a species of *Limnophilus* in a sheltered hollow on the summit of a bare chalk-cliff, where there was no fresh-water for two or three miles. I have several times before had occasion to refer to fir-trees as particularly productive to the Neuropterist; to the collector of *Trichoptera* they are pre-eminently favourable. The best way is to beat the branches over the net, and the caddis-flies that tumble into it must be boxed or bottled speedily, for they are wonderfully nimble, and by their peculiar zig-zag motions, often escape; and this habit renders their pursuit when on the wing somewhat perplexing, for although they do not fly far when disturbed, they often baffle the collector, and are even difficult to detect when settled, though probably under one's very nose. Some species (e. g., *Colpotaulius*) may be "trodden out" from the herbage on the margins of ponds, and the longer the same spot is disturbed, the more abundant the insects become. Another good plan is to separate the reeds or flags with the hand, and examine closely near the roots or at the surface of the water, for this is the favourite diurnal hiding-place of many. The copings of bridges and walls should not be neglected. I have, on more than one occasion, found good species under the coping of the bridge over the Serpentine in Hyde Park. Some species of the beautiful long-horned *Leptoceridæ* fly briskly in the hot sunshine close to the water in calm weather; but, if an air of wind disturb the surface, or the sun become obscured for a moment by a passing cloud, they mount rapidly into the air and disappear. Some again (species of *Hydropsyche* for instance) dance in swarms over streams, especially towards dusk. Although (with only one or two exceptions) they are all aquatic in their earlier stages, yet their habits are as varied as are those of the terrestrial *Lepidoptera*. Many genera can only exist as larvæ in water that is always in a placid condition (such as that of ponds), whereas others require the element to be highly aërated (e. g., *Rhyacophila*) and constantly cold, and there are lovers of every intermediate state, so that a few miles walk along the banks of a small stream sufficiently varied in its character, will furnish a large number of species. Even the mechanical contrivances by which man alters

the natural state of a stream for his own benefit are of use to the collector, for if the placid course of a slowly flowing stream be changed to a foaming waterfall by a weir or water-wheel, the congenial conditions are at once seized upon by species which otherwise might be sought in vain. In fact, it is probable that more species frequent running than standing water, and it is this that makes the torrents of alpine regions so particularly productive; the cold is no hindrance, they may be found up to the snow-limit, and delighting in the vicinity of a glacier. So marked is the necessity of certain aquatic conditions for the well-being of particular genera or species, that the water-system of a particular district or country can often be understood by an inspection of a collection of caddis-flies from it. Thus, I once examined a large collection of species from Holland, which told as plainly of a low-lying flat country without mountains or torrents as could the most elaborate map. A certain amount of shelter in the perfect state is absolutely necessary to *Trichoptera*, and for this reason streams flowing over barren rocks are not productive. The acme of success may be obtained when the stream is fringed with low overhanging bushes; the net should be placed as far under the bush as possible, and the latter beaten vigorously over it, taking care that the net itself do not come off its handle, or it may go sailing away down the stream at a rate anything but agreeable to the astonished collector: such a *contretemps* has more than once happened to the writer. In moorland districts there are often streams which have cut their way through the peat, fringed with heather and other herbage; these are localities that should never be neglected. Light powerfully attracts some species, and unique or rare forms have more than once been found on gas lamps in the suburbs of London. It has also been recommended to hang a white sheet near water, the insects being attracted by it after dark, and settling on it. Tree trunks and walls near water should always be examined; on such positions the minute and excessively rapid species of *Hydroptilidæ* often absolutely swarm. But, after all, *experience*—that “hardest of all schools,” as I have seen it termed—is the one thing to be gained and acted upon.

Trichoptera should be set exactly as are *Lepidoptera* (premising that the excessively low setting mentioned at the beginning of this paper be eschewed), but must remain upon the setting boards longer than is necessary for insects of the latter order. Relaxed and re-set specimens take an especially long time before it is certain that the wings will not ultimately fall back. Much care should be exercised in re-setting with regard to the management of the hind-wings, which

are very troublesome and liable to get torn; occasionally a specimen will remain so long in the damping box that it falls to pieces, and yet these wings will not sufficiently relax the muscles at the point of attachment to the metathorax. If a specimen be quite intractable, then all one can do is to so far expand the wings by means of pins that an examination of the apex of the abdomen is possible.

No collection of *Trichoptera* can be considered complete without the cases manufactured by the larvæ of the various species. These are marvellous, alike from the beauty and variety of form exhibited in them, as from the great ingenuity displayed in their fabrication. The larvæ or pupæ should be extracted, and the cases may then be pinned, or gummed neatly on card. Cases made out of all sorts of fanciful materials may be obtained by forcing larvæ confined in aquaria to use such materials in default of being able to find anything else; but such cases should be looked upon in the light of curiosities only; there is always sufficient variety in natural conditions to satisfy the most fastidious collector.

CONCLUSION.

My purpose will be served, if the foregoing sketch of the ways and means best adapted to the acquirement of a collection of *Neuroptera* induces some of our young entomologists, who are tired of forming part of the crowd that can see no beauty in any insects other than *Lepidoptera*, to strike out a path for themselves, by bestowing a favourable glance upon my favourite order. It will be doubly served if they become not only *collectors* but *students* of that order. The field is enormous, and the land almost untilled: the settler in it may have (speaking metaphorically) to hew his own timber and build his own hut, but the result will be an abundant harvest.

Notes concerning the breeding of the various families from the egg, or larva, must be deferred to another opportunity.

39, Limes Grove, Lewisham, London, S.E. :

January, 1873.

DESCRIPTIONS OF TWO NEW BUTTERFLIES FROM THE WEST COAST OF AFRICA.

BY W. C. HEWITSON, F.L.S.

PAPILIO ILLYRIS, sp. n.

Upper-side: male, dark brown; both wings crossed from the costal margin of the anterior wing beyond the cell to near the inner margin of the posterior wing before its middle by an equal, continuous,

pale yellow band, divided by the nervures, which are scarcely seen ; posterior wing with a long tail, dentated and traversed by a sub-marginal series of five green-yellow spots, the two spots nearest the base of the tails large.

Under-side : as above, except that it is paler, with the base of the anterior wing and the inner margin of the posterior wing ochreous-yellow ; that the posterior wing has a black spot, bordered above with carmine, near the costal margin above the central band ; that there is a carmine spot, marked with black, at the end of the cell, and two linear carmine spots between it and the inner margin ; and that it is crossed by a series of large black spots beyond the middle, and by a sub-marginal series of linear black spots irrorated with lilac-white.

Expan. $3\frac{1}{2}$ inches.

Hab : Gold Coast.

Nearly allied to *P. Kirbyi*, and, like it, remarkably different from any other African butterfly which we have seen before. It was taken by Mr. Henry Rogers, on his way to St. Paulo de Loanda, where he has gone on a collecting expedition. Mr. Rogers, making a long and tedious voyage profitable, contrived to collect and send home nearly 700 insects taken during his passage.

DIADEMA CHAPMANI, sp. n.

Upper-side : rufous-brown, with the margins broadly dark brown ; the nervures black, the fringe marked by small white spots between the nervures.

Under-side : as above, except that the base of the anterior wing and the costal margin of the posterior wing are brightly ferruginous ; that both wings have a sub-marginal series of very minute spots, in pairs ; and that the anterior wing has a large bifid white spot between the median nervures.

Expan. $3\frac{9}{16}$ inch.

Hab : Calabar.

I have given myself the pleasure of naming this species after Mr. Chapman, of Glasgow, an ardent admirer of the *Lepidoptera*, who has kindly added it to my collection. It is quite unlike any other species.

Oatlands, Weybridge : February, 1873.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA AND SPECIES (No. 6).

BY F. BATES.

EVOPUS LECONTII, sp. n.

♂. Elongate-oval, pitchy-brown, glossy ; legs, mouth, and base of antennæ clear ferruginous ; head finely and sparingly punctured, anterior border reflexed, front

concave, epistoma with two rather large triangular teeth in front, the sutural line arched; antennary orbits prominent and somewhat angularly rounded; the two horns, placed as in *E. ferrugineus*, are elongate, tapering and somewhat divergent from the base, curved backwardly, and slightly inwardly at their summits, rather broadly connected at the base by a transverse elevated ridge; behind the horns, the head is somewhat prolonged, and it is seen to be decidedly convex, the deep rounded excavation behind the upper portion of each eye in *E. ferrugineus* is in this species but faintly indicated; prothorax minutely and not closely punctulate, strongly transverse, sub-quadrate, very convex (almost gibbous), sides regularly and moderately rounded, base rather strongly bi-sinuate; elytra strongly sinuate at the base, scarcely so wide as the prothorax at its widest part, seriate-punctate, the punctures rather close together, the usual short scutellar row obsolete, intervals finely punctured, the punctures arranged somewhat in lines; anterior tibiae rather strongly serrate at their outer edge from near the base, the intermediate serrate at their apical third only.

Long. corp. 3 lin.

♀. Unknown.

Hab.: "Colombia;" one example.

I refer this species to *Eroplus*, notwithstanding the excavation behind the eye (characteristic of the type species) is but feebly indicated rather than existent; but the position and character of the horns, the form of the eyes, which (more especially in the ♂) are narrowed in their upper portion behind by an expansion of the cheeks, the more regularly rounded sides of the prothorax, with its apex decidedly sinuous and the angles strongly rounded, are alike in both species, and different from the great majority of the species in the very closely related genus *Hoplocephala* (the members of which have usually the vertex and occiput deeply excavated in the ♂), the only other genus to which the present species could possibly be referred. It is, nevertheless, a question whether, having regard to the weakening of certain characters as perceived in *E. Lecontei* and in *H. lateralis*, the two genera had not better be considered as but one.

Dr. Horn, in his recently published work ('Revision of the Tenebrionidae of America, North of Mexico'), places *Eroplus* with the *Uromides*; and Dr. Le Conte, in his description of the genus ('New Species of North American Coleoptera,' p. 128), says "*coxis mediis episternis arcte inclusis, trochantino nullo.*" In the four examples of *E. ferrugineus* before me, I find the mesocoxal cavities open externally, and the trochantin distinctly visible; the genus is therefore undoubtedly referable to the *Diaperides*, and must, if maintained as distinct from, be placed close to, *Hoplocephala*, with which genus and its allies it also agrees in having the prosternum very short, compressed, and convex, and the head somewhat loosely fitting in its cavity (apparent when viewed on the under-side).

The mandibles in the ♀ of *E. ferrugineus* are strongly angulated at their outer side, and project beyond the lateral margins of the apex of the epistoma and base of the labrum. It would be interesting to discover the ♀ of the species just described, to see if a like peculiarity exists.

LIODEMA, Horn.

(Rev. Tenebr. Amer. N. of Mexico, p. 385).

In addition to the character drawn from the peculiar form of the mesosternum (very accurately defined by Dr. Horn), it is necessary to add, at least for the species described below, that the antennæ are more or less serrate at their inner side, and the epipleural fold is rather broadly continued to the apex of the elytra.

LIODEMA KIRSCHI, *sp. n.*

Broadly ovate, convex, black, opaque; head, margins of prothorax, and scutellum, dull red; head and prothorax indistinctly and very minutely punctulate, the latter with two shallow, obliquely-placed foveæ at each side the middle of the disc; on each elytron, a dull red crescent-shaped band, curving backwardly from the base, at the scutellum, to the shoulders (but not nearly reaching the margin); the apex with a large, dull red patch, extending to the sides, suture and apex, and having on its centre an oblique blotch, black; the reflexed margins dull red; very finely seriate-punctate, the intervals rather broad; under-side reddish-brown, shining, legs and mouth organs shining testaceous; antennæ wanting; mesosternal process elongate, sides parallel, sub-truncated in front; abdomen glabrous, bi-foveate at each side, and longitudinally strigose.

Long. corp. $2\frac{1}{2}$ lin.

Hab.: Bogota; one example.

LIODEMA OBYDENSE, *sp. n.*

Broadly oval, sub-depressed, black, elytra opaque, head and prothorax slightly shining; the former entirely, the latter at the margins, rufescent; scutellum slightly rufescent; on each elytron, a dull red crescent-shaped band near the base, as in the preceding, but more obscure and with its lower margin crenulated; there is also a dull red band near the apex, but it does not reach the suture, and its upper edge is sinuous, its lower crenulate, or sub-dentate; the extreme apex is also dull red; apparently impunctate, but, when viewed under a high power, the surface is seen to be very minutely seriate-punctate; the reflexed margins black as far as the pre-apical band; under-side reddish-brown, somewhat shining; legs, mouth organs, and antennæ, shining testaceous; abdomen pubescent, finely punctured; mesosternal process short, broad, rounded in front.

Long. corp. $2\frac{1}{2}$ lin.

Hab.: Obydos, Lower Amazons; one example.

Very near the preceding, but quite distinct by the characters indicated.

LIODEMA HORNI, sp. n.

Broadly oval, depressed, brownish-black, sub-nitid ; head in front, and margins of prothorax, reddish-luteous, the latter with a slight oblique depression at each side of the median basal lobe ; scutellum luteous ; on each elytron, a broad, oblique, reddish-luteous fascia near the base, which does not extend to either the side or the suture, its upper margin (at the inner side) with a deep semi-circular notch, the lower margin with two similar but (especially the inner one) smaller notches ; the apex—except near the suture—broadly pale luteous, the reflexed margins entirely reddish-luteous ; minutely seriate-punctate ; under-side castaneous ; epipleural fold, legs, organs of mouth, and basal joints of antennæ, shining testaceous ; joints 4 to 9 of antennæ rather strongly serrate within ; mesosternal process short, broad, rounded in front ; abdomen very finely punctured. Long. corp. $1\frac{3}{4}$ lin.

Hab. : Santarem, Lower Amazons.

LIODEMA FULVUM, sp. n.

Broadly oval, depressed, fulvous, sub-nitid ; lateral margins of prothorax paler ; on each elytron, an obscurely defined, pale luteous, oblique band near the base, extending from the shoulder to near the suture, its upper edge with a deep emargination ; and another, sub-apical, pale testaceous, slightly oblique, expanding outwardly and reaching the margin of the elytron but not the suture ; under-side, legs, antennæ, &c., shining testaceous ; joints 5 to 9 of antennæ serrate within ; mesosternal process short, broad, the end strongly rounded ; abdomen finely and rather closely punctured. Long. corp. $2\frac{1}{2}$ lin.

Hab. : Cumana ; one example.

LIODEMA CONNEXUM, sp. n.

Broadly ovate, convex, sub-nitid ; head and prothorax deep black, the former in front, and the reflexed margins of the latter, red ; on each elytron, two deep black bands (one basal, and extending only half across the elytra, the other median, and extending two-thirds across), their inner margins expanding in a curve and uniting at the side of the elytron ; distinctly seriate-punctate, almost punctate-striate at the sides ; the reflexed margins entirely red ; under-side shining reddish-brown ; epipleural fold, legs, mouth organs, and basal joints of antennæ, shining testaceous ; joints 5 to 9 of antennæ rather strongly serrate within ; mesosternal process elongate, sides parallel, end rounded ; abdomen impunctate, the 4th segment broadly and deeply emarginate. Long. corp. $2\frac{1}{2}$ lin.

Hab. : "Colombia." A single example out of the Dejeanian collection, labelled "*Platydemia connexa*, Dej."

LIODEMA SERRICORNE, sp. n.

Oval, testaceous, sub-nitid, sub-depressed : prothorax with six irregularly formed black spots ; two central, rounded, and joined at their inner edges, two larger, oblong, and slightly oblique, at each side, and two triangular, situate at each side of the centre of the basal margin, close to the scutellum ; on each elytron, three strongly toothed black fasciæ : the first sub-basal, incomplete, the outer half being represented by a

humeral spot, and another spot near the margin, the second median, extending from the margin to the suture, and united to the first by a sutural extension, the third near the apex, shorter, extending neither to the suture nor the margin; reflexed margins entirely testaceous; indistinctly and very minutely seriate-punctate, the punctuation scarcely visible except at the sides; under-side dark reddish-brown; legs, epipleural fold, sides of abdomen, and antennæ, shining yellow; the latter with joints 4 to 9 strongly serrate within; mesosternal process short, broad, rounded in front; abdomen finely longitudinally strigose.

Long. corp. $2\frac{1}{2}$ lin.

Hab. : Cayenne; one example.

STENOSCAPHA, *g. n.*

Differs from *Liodema* in having the form narrowly oval, the outer edge of the anterior tibiæ finely pectinate, and with two unequal spines at the apex outwardly; the four posterior tibiæ setose at their outer edge, and bi-spinose at the apex outwardly; the tibial spurs much longer; the eyes narrower at the sides and above, less approximate above, not obliquely prolonged on the front; and the middle joints of the antennæ triangular, but not serrate within. Mesosternum, &c., as in *Liodema*.

A genus remarkable by the peculiar armature of its tibiæ.

STENOSCAPHA TIBIALIS, *sp. n.*

Elongate-oval, black, sub-nitid; head in front, and margins (more especially the basal) of prothorax, rufescent; head and thorax minutely punctured; scutellum slightly rufescent; elytra obsoletely seriate-punctate, the intervals finely punctured; the reflexed margins entirely, and the suture obscurely, red; the apical half of each red; under-side reddish-brown; abdomen pubescent, finely punctured; mesosternal process elongate, sides parallel, end rounded; legs and antennæ reddish-testaceous.

Long. corp. $1\frac{1}{2}$ lin.

Hab. : Ega, Upper Amazons; one example.

ALLOPHASIA* MARSEULI, *sp. n.*

Oblong-oval, smooth, shining; bright reddish-ferrugineous, except the outer eight joints of the antennæ, which are dull reddish-brown; head finely and not closely punctured, strongly depressed between the eyes, front edge of epistoma elevated, slightly reflexed, rather strongly bi-emarginate, the middle lobe scarcely forming a horn or tooth; prothorax moderately rounded at the sides, very finely and rather closely punctured, the anterior margin armed at the middle with two rather short conical pointed horns, curved slightly backwardly and outwardly, broadly connected at the base by an elevated ridge, and having behind them a broad and rather deep excavation; elytra finely punctate-striate, the striæ very faint, the intervals finely and rather closely punctured, and sub-convex behind.

Long. corp. $2\frac{7}{8}$ lin.

* Pascoe, Ann. and Mag. of Nat. Hist., November, 1871, p. 351, pl. xiv., fig. 11.

A single (♂) example out of the 'Collection Doué,' labelled "*Neomida foreicollis*, Buquet."

At once to be distinguished from *A. Fryi*, Pasc., by the more elongate and parallel form, the entirely reddish ferruginous colour, the differently formed horns at the fore-margin of the prothorax, &c.

15, Northampton Square, Leicester :

January, 1872.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(continued from Vol. vii, p. 196).

For the first time in their lives, European Homopterists are in possession of a complete list of the species. The late Dr. Fieber's "*Katalog der europäischen Cicadinen*"* shews that about 850 species is their sum total; but I fear we shall not be able to produce British representatives for a fourth of that number. Although the list occupies only some 16 pages, yet the labour required in constructing it must have been very great; for, except amongst some of the more common species, the descriptions by older authors of a very large number are so vague and unsatisfactory, that it was absolutely necessary that original types should be obtained for comparison and identification. Now that we have a definite starting point, I purpose, from time to time, to give a revision of various genera, so as to enable those who are at work upon them to have an idea of what species we possess, and to describe such as may be new to Britain, so as to lead others to trace their identity. Fieber's list is cheap, and will serve well for labelling.

[*Revision of the Family DELPHACIDÆ, and descriptions of several new species of the genus DELPHAX of Authors.*]

Species 8a.—*LIBURNIA ÆMULATOR*, *n. sp.*

Undeveloped form, ♂.

Keels of the head and face white; *pronotum* greyish-white. *Scutellum* pale brownish-yellow.

Head longer than broad, pale brownish-yellow; *crown*—keels white, not prominent, channels black as far as the apex of the long, narrow triangle formed by the middle keels. *Face* yellowish, keels white, margins of the keels black. *Antennæ* yellowish. *Eyes* fuscous-grey.

Thorax: *pronotum* greyish-white, keels distinct; beyond the side keels, and underneath the eyes, somewhat pale brownish-yellow. *Scutellum* pale brownish-yellow, margins and keels greyish-white. *Elytra* pale fuscous, scarcely half the length

* To be obtained through Mr. Janson, 28, Museum Street, W.C.—J. S.

of the abdomen, rounded posteriorly; nerves not prominent nor granulated. *Sternum* yellowish. *Legs* pale yellowish-white; *tarsi*—1st and 2nd pairs, with the apex of the 3rd joint, narrowly black.

Abdomen above brownish-yellow, with a narrow, pale dorsal line; 3rd, 4th, and 5th segments on each side with three dark spots, the intermediate spaces pale as in the dorsal line, 6th with a dark spot in a line with the middle row of the foregoing; *genital segment* yellow, black from the middle to the apex; appendix black at the base, apex yellow, styloid processes pitchy-black, somewhat T shaped.

Undeveloped form, ♀.

Similar to the ♂ in all respects, except the following, viz.:—keels of the face broadly black; apex of the inner margin of the elytra with an indication of a fuscous streak. *Abdomen* slightly pale fuscous towards the base, middle row of spots on the sides large and black. Length, $\frac{3}{4}$ — $\frac{1}{2}$ line.

Developed form unknown to me.

Nearly related to *L. elegantula*, but it has not a black scutellum, nor a black patch, almost concealed by the eyes, on the pronotum, as in that species. Viewed from the side, the similarity in appearance of such portions of the genitalia of these two species as are visible is remarkable, but their styloid processes are entirely different in form.

I possess a ♂ and ♀ taken by myself on Dartford Heath, in August, 1867.

Species 11a.—LIBURNIA CONSANGUINEA, n. sp.

Undeveloped form, ♂.

Keels of the head and face white, the latter narrowly margined with black; *pronotum* and *scutellum* pale luteous or yellowish-white. *Abdomen* black.

Head longer than broad, pale luteous or yellowish; *crown*—the two basal foveæ deep and distinct, keels white, channels black as far as the apex of the triangle formed by the two middle keels. *Face* luteous or yellowish, keels white, narrowly margined with black; adjoining the side keels are (apparently) two pale pustules, the upper one almost in a line with the lower margin of the eye. *Antennæ* yellow. *Eyes* dark brown or piceous.

Thorax: *pronotum* pale luteous or yellowish. *Scutellum* pale luteous or yellowish, darker between the keels, which have a greyish appearance. *Elytra* grey, almost transparent, scarcely covering half the abdomen, rounded posteriorly; nerves distinct, not granulated. *Sternum* yellow; *metasternum* with a large, somewhat oval, black spot on the sides. *Legs* pale yellow or yellowish-white; *tarsi*—apex of the 3rd joint of the 1st and 2nd pairs narrowly black.

Abdomen black, with a very narrow, orange-yellow, dorsal line, and a marginal spot of the same colour at the posterior angle of each segment; *genital segment* black; styloid processes pitchy-black. Length, 1 line.

♀ unknown to me.

In appearance, somewhat like *L. distincta*, but the pale head, pronotum, scutellum, and elytra will at once lead to its separation.

Two males are all the examples I have seen; and these were taken by Mr. Douglas, at Bournemouth, in September.

Species 13a.—*LIBURNIA SIMILIS*, *Kirschb.*

Liburnia similis, *Kirschb.*, *Cicadinen*, p. 30, 22 (1868).

Undeveloped form, ♀.

Keels of the head, face, pronotum, and scutellum concolorous.

Head, *pronotum*, and *scutellum* brown, the two latter somewhat reddish-brown.

Elytra clear brownish-yellow, covering more than half the abdomen, obtusely rounded posteriorly, nerves finely granulated, marginal nerve slightly pale.

Legs yellow; *tarsi*—1st and 2nd pairs fuscous.

Abdomen dusky fulvous or brownish, posterior margin of the segments paler.

Length, 1 line.

This species will come immediately after *L. Boldi* in our list, as it at present stands.

I possess two females from Scotland, but have no record as to precise locality or date of capture.

(*To be continued*).

DESCRIPTIONS OF TWO NEW SPECIES OF *ICHNEUMONIDÆ* (*ANOMALON* AND *MESOSTENUS*) FROM GREAT BRITAIN.

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

ANOMALON FASCIATUM (Smith, M.S.), sp. n.

A. nigrum, ore, mandibulis præter apicem, clypeo, facie, orbitis internis et externis, antennarum articulo primo subtus, prothoracis maculis duabus triangularibus, duabus sub alis, aliaque supra coxas posticas, scutello, trochanteribus, segmenti primi apice, secundi et sequentium dimidia fere parte, flavis: antennis pedibusque rufo-flavis, illarum articulo basali supra nigro, articulis apicalibus supra fuscis, horum femoribus posticis subtus nigro lineatis, tibiisque posticis apice nigris.

♂ ♀.

Long. 8—9 lin.

Head buccated, not wider behind the eyes; front with two blackish foveæ under each antenna, and, between these foveæ, a protuberance with a central black tubercle. Clypeus indistinct, faintly but widely emarginate at the apex. Mandibles with two sub-equal teeth. Antennæ longer than half the body, filiform; first joint of the flagellum twice as long as the second. Eyes naked, not emarginate at the base of the antennæ. Thorax almost as broad as the head and, with the pleuræ, thickly punctured, sub-obscure; scutellum convex, shining yellow, punctured; metathorax not excavated in the middle, sub-rugulose, obscure, with a shining carina, curved outwards, on each side near the base. Abdomen smooth, shining; first segment two-thirds of the length of the hind femora, its sides parallel to just before

the tubercles, then slightly widened, and again parallel to the apex; the second and following segments strongly compressed, giving the abdomen (viewed laterally) an elongate-pyriform appearance. Terebra hardly exerted. Hind tibiæ and tarsi incrassated, but less so than in other species of the genus; unguis simple. Forewings with the discoidal transverse vein continuous with the dividing nervure of the two cubital cells, and hardly geniculated close to its base; the transverse anal nervure of the hind-wings genticulated in the middle. Both sexes are similarly coloured. The yellow fasciæ of the abdomen are paler after the second segment; continued, but narrower, under the belly. Coxæ shining black; trochanters yellow; femora and tibiæ reddish-yellow; the hind femora with an apical black streak beneath.

The abdomen is shorter, stouter, and more pyriform than in other large species. The black and yellow coloration are suggestive of *Banchus*, but the absence of the areolet corrects the impression. The neuuration of the wings, as indicated above, is peculiar, and might be taken as constituting a new genus, of the same value as *Agrypon* and others. The specimen above described, which Mr. Smith has kindly given to me, is a ♀, but I have seen one or more males of it in the British Museum. They were bred by Mr. Mitford, from a supposed permanent variety of *Lasiocampa trifolii*, and are not only new to Britain, but hitherto unknown anywhere.

I am also favoured by Mr. Smith with the following information respecting a fine *Mesostenus*, hitherto undescribed, in the British Museum. Perhaps this notice may serve as a guide to any collector who may be fortunate enough to meet with the same species in the north of England. Five specimens were purchased by the Museum at the sale of the late Mr. Heysham's collection. They attracted the notice of the late Mr. Desvignes, who intended to describe them, but unfortunately did not. They were taken in the neighbourhood of Carlisle, as were also four specimens of *Trigonalys anglicana*, one of which was sent to Mr. Smith for identification. The following is that gentleman's description of the *Mesostenus*, which I propose to name

MESOSTENUS MAURUS, sp. n.

"Totally black, excepting the scutellum, which is yellow, as well as six joints of the middle portion of the antennæ. The anterior tibiæ, and the apical portion of the femora, are ferruginous; the anterior tarsi obscurely so. The extreme apical margin of the first segment of the abdomen is sometimes obscurely ferruginous. Metathorax truncate, armed laterally with two acute spines. Long. 5 lines."

I have seen, but never examined, the specimens, and my impression is that they are of large size for the genus.

Note on a second British species of Liosomus.—I have had in my collection for a long time, but have accidentally hitherto neglected to examine and record, a single example of a species very distinct from our common *ovatulus*, not taken by myself, but given to me as a variety of that insect, and for which I cannot publish the precise locality, as I had no note of it with the specimen. It is, from description, evidently the *Liosomus oblongulus* of Boheman, in Schönherr's Gen. et Spec. Curc. vi. (Suppl.), p. 316; but I have had no opportunity of comparing it with any type of that species, as the only supposed exponent of it to which I have access is that in the general collection of the British Museum (arranged by M. Jekel), and which is distinctly only *ovatulus*. Compared with typical *ovatulus*, my insect (an immature ♂) is rather smaller, very decidedly longer and narrower, with a longer and more coarsely and deeply punctured rostrum, which is not quite so stout or so curved downwards, longer antennæ (the scape being especially long), straighter sides to the thorax, and un-toothed femora. Beneath, it is rather more strongly and remotely punctured, and the (♂) metasternal depression is wider and better defined.

As regards *ovatulus*, I think the not uncommon lighter coloured race deserves at least some recognition, and therefore propose the name *collaris* for it, as it seems by no means improbable that specific rank may eventually be attributed to it. As far as my experience goes, I find this race to be smaller than the type, and to have fuscous or rufo-testaceous legs with darker tips to the femora, the legs themselves being rather longer and of more feeble build (the femoral tooth being also not so much developed), rather longer antennæ, and very often a clear red thorax, of which the punctuation is apparently always not quite so close. Colouration does not seem to be the result of immaturity in this form, which my friend Mr. John Scott tells me he used to find in moss at Renfrew, where it was the commoner of the two. I do not happen to have taken any individuals of the ordinary larger and deep black form varying at all in size; but I am indebted to that indefatigable observer, Mr. H. Moncreaff, for one rather smaller than the smallest of my rufescent individuals (*i. e.*, about half the ordinary size of the black race), and which was taken, with others like it, by him out of moss, in a very restricted locality, unaccompanied by any large specimens, near Portsdown Hill. The black common form has never occurred to me in moss; but always in or about wet *débris* at the water's edge. As regards punctuation, I find that the males often have the thorax less closely punctured than the females; some of the latter sex also having the thoracic punctuation much closer than others. Both sexes have the femora distinctly denticulated beneath; Boheman's doubt as to the correctness of Clairville's reference of femoral teeth to the ♀ and none to the ♂ being well founded: but certain lately described species are stated to present sexual differences in this respect. I observe that in ordinary black *ovatulus* the protuberance above the middle of the inner side of the front tibiæ is more evident in the ♂ than in the ♀. This protuberance is very slightly indicated in my individuals of the race *collaris*; and it is wholly absent in my ♂ *oblongulus*, of which the anterior tibiæ are slightly but evenly curved inwards for their whole length until quite close to the inner apex.—E. C. RYE, 10, Lower Park Field, Putney, S.W.: February, 1873.

Note on a species of Bagous new to Britain.—I am indebted to Mr. Champion for a *Bagous* (of which some half-dozen specimens were, I believe, given to him by

Dr. Power, who took them during the past year) new to our list, and which I refer to *B. brevis*, Schön. and Thomson. Superficially somewhat resembling *B. frit*, which it rather exceeds in size, this insect is readily distinguishable by its thorax being very strongly constricted before the apex, and having a dorsal channel ending in the middle one of three foveæ, situated in the anterior constriction. The interstices of its elytra are slightly elevated, the 5th exhibiting the usual callus; and the tibiæ are stout, much curved inwardly, and thickened above the middle.—ID.

Note on possible effects of isolation.—Among some beetles sent to me for names by Mr. J. Chappell, are a few from the Isle of Man, of which the following exhibit some peculiarity.

Notiophilus palustris, two examples; one much narrower and with the punctuation much coarser than usual, the interstices being elevated, and the whole insect symmetrically abnormal; the other of the usual facies, but with two large well-marked and evenly-balanced punctures on the front of the disc of the thorax,—a character which at all events deserves record, as (upon the elytra) materially assisting to establish specific rank for *N. 4-punctatus*.

Amara trivialis; smaller and darker than usual, of entirely dull surface.

Harpalus æneus; also much smaller, and with the emargination at the apex of the elytra (an unstable character) less deep than usual; the male exceedingly bright green, with coppery suture to the elytra and dark legs, and the female very dark and dull, with subdued green silky reflections; in both, the thorax is more than usually contracted behind, with the basal foveæ very distinctly marked: and this is particularly conspicuous in the female, in which the usual irregular basal punctures are entirely wanting. I can almost exactly match this female with an example from the Shetland Isles.

Aleochara cuniculorum; wanting the usual red spots on the elytra.

Remembering the eccentricities of Manx *Meloë proscarabæus* recorded in this Magazine, I cannot but think that the occurrence in one small box of these divergencies from the normal condition is not merely accidental. Mr. Chappell tells me, also, that *Corymbites quercus* abounds on rocks in the Isle of Man; and, as it appears to find a footing in such a very unlikely place, I can only suppose that it is affected by the motto ("Quocunque jeceris adsto") of the Island.—ID.

Note on the Cossonus linearis of British collections.—Being occupied just now on a revision of the genera of the *Cossonidæ*, I have had occasion to compare a few ordinary specific forms, and it has greatly surprised me to find that English examples which I had been accustomed to regard as the *Cossonus linearis*, do not, in reality, pertain to that species at all, but to the *ferrugineus*, Clairv. The particular individuals now before me were taken several years ago by Mr. E. W. Janson, in an old willow-tree close to Kentish Town; but I believe them to be conspecific with what I used formerly to obtain near Cambridge, and elsewhere, and I should be thankful, therefore, if Coleopterists would look to their examples of so-called "*C. linearis*," in order to ascertain whether they are correctly identified, and do not belong rather (as I suspect) to the *C. ferrugineus*. There is not the slightest difficulty in distinguishing the two species,—the true *C. linearis* (which may, perhaps, prove, after all, not to be British) being very much flatter, and more deeply and coarsely sculptured, with its

rostrum a little shorter, thicker, and more dilated towards the tip, with its scutellum appreciably larger, and with its tibiæ (at any rate, the four hinder ones) less sinuated internally. There are many other characters, which will at once be seen on inspection; but these will suffice for my present purpose.—T. V. WOLLASTON, Teignmouth: *February, 1873.*

Note on the synonymy of Cryptophagus crenatus, Gyll.—When at Macugnaga last summer, I captured a very remarkable and interesting *Cryptophagus* in a boletus. On attempting to name the specimens, I find the species to agree accurately with Erichson's description of *C. crenulatus*, except that my specimens are considerably smaller than the size he gives ($1\frac{1}{2}$ lin.), the largest of my specimens being scarcely a line in length. I consider, however, this discrepancy not to be of importance, and accordingly indentify my species as the very rare *C. crenulatus*, Er. After his description, Erichson adds a note, saying that Gyllenhal's description of *C. crenatus* applies accurately to *crenulatus*, except in the size,—Gyllenhal saying that *crenatus* is more than twice as small as *scanicus*. Now, as this is really the case with my specimens of *crenulatus*, it would appear that Erichson's *crenulatus* is really synonymous with the *crenatus* of Gyllenhal. Thomson, however, has identified the description of Gyllenhal with a totally different insect, viz., the *C. bicolor* of Sturm and of our collections, and he replaces the name *bicolor* with that of *crenatus*, Gyll. On consulting Gyllenhal's description, however, I cannot agree with Thomson in assigning it as applicable to *bicolor*; while, on the contrary, it seems to me really applicable to my small specimens of *crenulatus*, as it was thought by Erichson it might be. There is, however, yet another difficulty. Gyllenhal quotes with a query his *C. crenatus* as being the *Dermestes crenatus* of Fabricius. On turning to Fabricius, I find that his *Dermestes crenatus* (first described, by the way, in Ent. Syst. Supp., 72, 41) may or may not be this insect, his description being quite worthless. It is *probably* neither *crenulatus*, Er., nor *bicolor*, Sturm; but appears particularly inapplicable to *bicolor*. I think it may be left out of the question altogether, until its type be forthcoming for its identification. It remains then to be decided whether Gyllenhal's name shall be adopted for *crenulatus*, Er., or for *bicolor*, Sturm, or for neither. I am myself in favour of this latter course; for I do not think Gyllenhal's name should be adopted for *bicolor*, because his description is not applicable thereto, and I do not think we should be justified in substituting the name *crenatus*, Gyll., for *crenulatus*, Er., because, though the description would appear to warrant this, yet we have no corroborative evidence of the occurrence of *crenulatus* in Sweden. I may add, that my specimens were found in a boletus adhering to a dead and decaying pine, in company with *Epurea variegata* and *Gyrophæna boleti*. These circumstances render its occurrence in Sweden probable; but, until this be proved, I think *crenatus*, Gyll., must remain a doubtful name, more especially as he says of his insect, "Hab. in quicquiliis." I will merely add, that Thomson gives no reason for his adoption of the name *crenatus*, Gyll., for *bicolor*, Sturm, beyond quoting Gyllenhal's description.—D. SHARP, Eccles, Thornhill: *January, 1873.*

On the reported occurrence of Apatura Ilia in England.—Mr. W. Oxenden Hammond kindly sent me for examination the supposed British specimen of *Apatura Ilia*, which is mentioned by Mr. Butler in a communication to 'The Entomologist's Monthly Magazine,' published in the last number, p. 219.

I think some mistake must have been made with regard to this butterfly, which appears to be a rather remarkable aberration of the Asiatic form of *Ilia* = *Metis* of Kindermann, which differs from the European type in the much more fulvous ground colour of its wings, and the absence of the ocellus at the anal portion of the posterior wings, which is very conspicuous in the ordinary European specimens.

The larvæ of *A. Iris* and *A. Ilia* feed upon willows and aspens, and never upon oak. *Iris* is almost entirely confined to woods in which the large wood willow (*Salix caprea*) grows; but *Ilia* is quite as often found in meadows in which willows and various kinds of poplars are growing. A friend of mine took *Ilia* in plenty in some meadows a few miles south of Paris, flying round the willows on the borders of a stream. Both species are single brooded, and the young larvæ hibernate when very small, stretched out along the branches of willows and aspens on which they have previously spun a web to which they are attached by their feet. I have found the young larvæ of *Iris* in March on the catkins of the willow shaken from the trees in Ongar Park Woods. They feed upon them till the young leaves appear, when they eat the leaves and are often more than half-grown before an oak leaf is to be seen. My late friend Dr. Maclean, of Colchester, often had young larvæ hibernating on a willow in his garden under a covering of muslin. The larvæ of *Iris* change to pupæ in June, and the butterflies always emerge in twenty-one days, and are on the wing the beginning of July. The same remarks apply to *Ilia*, except the time of appearance which is rather earlier: it is a more southern species than *Iris*.

I very much doubt the occurrence of hybrids between *Iris* and *Ilia*: the former scarcely varies at all except in the occasional absence of the white fascia across the wings, while the latter is perhaps the most variable of European butterflies.

I do not think the colours of Lepidopterous insects are ever affected in consequence of the larvæ having fed upon different plants growing in the same soil; but difference of soil decidedly affects the colours of some species, of which *Gnophos obscurata* is a familiar example.—HENRY DOUBLEDAY, Epping: *February 12th*, 1872.

Vanessa Antiopa in *Yorkshire*.—From the large number of specimens of this fine insect captured or seen in Yorkshire during the past year, it would seem that the Lepidopterists of that County have been especially favoured.

To those already named in the Magazine, I can add the following: Sept. 13th, a very fine example sent by a gardener from Warthill, about four miles east of York, to Mr. I. Robinson, and now in my cabinet. On the same day, a boy took one whilst gathering blackberries; and a few days after one was taken in the window of a coach factory, close to the Cathedral, and another by Mr. Dutton of York.

It appears to have been very abundant near the east coast. I have a letter before me from a friend at Beverley, who states that over twenty have been taken there, though only two of these were good specimens; and that Mr. Boyes knocked down four with his stick, when walking in the garden. I saw one in November that had been taken in Malton Railway Station; and the gentleman who had it told me that several had been seen and captured near Driffield.—WM. PREST, 13, Holgate Road, York: *January*, 1873.

Vanessa Antiopa in *Northumberland and Durham*.—In common with other parts of the Kingdom, we were last year visited by this very fine insect in unwonted

numbers. I have notices of about twenty specimens having been captured, and fully as many more seen on the wing, within the two counties. Most of them were taken or noticed between the 20th and 31st of August. All have white bordered wings, except one, which being a very fine specimen, is, I think, worthy of a little more notice from its having the wing borders decidedly yellow, and not white or yellowish-white. When placed amongst a series from Central Europe, it is found to be perfectly identical in colour, and can only be separated therefrom by the different pinning and setting. This specimen, which is now in the cabinet of my friend, Wm. Maling, Esq., was taken in Jesmond Dene, near Newcastle, on the 23rd of August, about 11 a.m., and, from its absolutely perfect condition, and sluggish flight, had evidently only very recently left the chrysalis. When first noticed, it was sitting amongst low herbage near some willows, and when approached flew heavily up to the branch of a tree, from where, on being dislodged by clods of earth, it fell to the ground, and was taken by the captor with his finger and thumb.—THOMAS JOHN BOLD, Long Benton, Newcastle-on-Tyne: *January 25th, 1873.*

Butterflies at sea.—In the “*Abhandlungen vom naturwissenschaftlichen Vereine zu Bremen*,” Band 2, Heft 2, pp. 297—298 (1872), Herr F. Buchenau notices the occurrences of swarms of *Pieris brassicae* at sea, off the mouth of the Weser. In the middle of July, 1872, he made a sea-excursion on board a fishing boat from Bremerhaven. So long as the boat was in the river, or at its mouth, only an occasional ‘cabbage-white’ was to be seen crossing the river, and soon disappearing. But, when once out at sea, the boat was enveloped in a swarm of these butterflies, so thick as to resemble a snow-storm. The weather was hot, and the surface of the sea undisturbed by any wind. Many of the insects were to be seen posing themselves with erect wings on the surface, others were lying flat on it, as if dead, but flew away rapidly if disturbed. They were accompanied by Dragon-flies (*Æschna* sp.) which evidently preyed upon them, and also by small flies and ichneumons. Herr L. Häpke (in a foot-note) mentions a similar occurrence in a neighbouring locality in July, 1868.—Ebs.

Natural History of Acidalia incanaria.—I am indebted to Mr. J. E. Fletcher, of Worcester, for the opportunity of renewing my acquaintance with the larva of this species; some eggs kindly sent by whom, loose in a quill, on the 26th of July, 1872, hatched on the 2nd of August following.

The young larvæ fed from the first on *Polygonum aviculare*, thriving so fast that one had changed to a pupa by the 31st of August, several others by the 5th of September, and more by the 14th; the remainder being attacked and killed by mildew when approaching pupation. The first moth appeared on the 14th of September, the others between the 26th of that month and the 3rd of October.

The egg is of a rather long oval shape, a little depressed on part of its surface, with the shell very finely reticulated, and of a deep flesh colour, turning to brown two days before hatching.

The young larvæ at first, and for some time, were of a pale ashy grey tint above, and darker grey beneath; resting often with their front segments curled under; at the end of a fortnight they were sufficiently grown to show their distinctive characters very well: at the end of another week, varieties in their colouring began to appear, and from this time they were generally in straight postures on their food-plant, and, even when disturbed from it, they remained rigid, as if feigning death.

When full-grown, the larva is nearly three-quarters of an inch in length; though convex both above and below, yet its shape appears a little flattened; the broadest segment is the ninth, from which those in front taper very slightly towards the head, which is the smallest segment, and is indented on the crown; the last four segments are also very little tapered until near the anal tip; all along the sides, the inflated spiracular ridge is interrupted at each segmental division, and there are four sub-dividing wrinkles at unequal distances on the back, and twelve at equal distances on the belly, of each segment. The ground colour, according to the individual, is either brownish grey or reddish or ochreous brown: the head, dark in the centre, is brown, and freckled with darker at the sides; the sub-dorsal line begins a little below the crown of each lobe, and continues very distinct to the end of the fifth segment, the dorsal line beginning on the second segment, and continuing distinct for the same distance, both being pale ashy or ochreous in colour; from thence to the tenth segment both dorsal and sub-dorsal lines generally become so suffused in their course as to be but partially visible, and, in some instances, hardly to be traced through the brown bands which cross each of those segments, namely, a narrow band in front, and a broad one on the hinder part, leaving between them but a small space of the ground colour; on the last four segments, however, the lines are more distinct. At the end of the fifth segment on either side is a conspicuous round black spot near the sub-dorsal region, followed in some instances by another, a trifle smaller, on the end of the sixth. In segments five to nine, inclusive, the back of each bears the following details, composed chiefly of brown freckles, more or less confluent, viz.: on the dorsal region in front of each, two simple leaf-like shapes of darkish brown, pointing backwards, united at their base but diverging near their tips, which end at the anterior pair of tubercular black dots; on the hinder part of each of these segments are equally wide dorsal shapes of brown, merged together at their base, but soon separating into Vs with double side strokes, the outer stroke of each pair being longer than the inner, and reaching to the side, the central space between the inner strokes mostly filled up with the same brown colour until near the anterior pair of dots, where it fades away; the posterior pair of black dots just within the outer strokes, and not far from the segmental division. Instances occur where these outer oblique dark strokes are margined a little way on their course by pale ashy or ochreous. The ninth segment is paler than the others, and the tenth paler still; and on the back of the three hinder segments, the markings are very simple rudiments of the preceding details. The sides are throughout clouded and streaked with darkish brown, and on the thoracic portion a strong dark brown line borders the pale sub-dorsal below; the spiracles are of the ground colour, ringed with darker brown. The belly of each segment is darkish grey-brown at the sides, with a paler ashy-tinted pear-shape in the middle, outlined with dark brown, and on the narrowest part of this pear-like outline, is placed on each side a conspicuous blackish spot; a whitish ashy stripe runs down the centre, widening at the end of each segment, and interruptedly outlined with blackish, most strongly at its widest part.

The most noticeable variety among the larvæ I had, was of a pale grey ground colour, in which the dorsal line could be distinctly traced throughout, though but little paler than the ground, and (as in many other species of *Acidalia*) was strongly bordered at the beginning of each segment with a short black mark (and this again, in one instance, with a white mark), these black marks, becoming more and more de-

veloped towards the twelfth segment; the dorsal markings down the back but thin and slight imitations of those described above, and none of them clouded or merged together; the anterior pairs of tubercular dots black, and the hinder pairs white, finely ringed with black.

The pupa is $\frac{1}{8}$ inch in length, rather stout in proportion, broad at the thorax, the abdomen tapering rather suddenly to a point which terminates in six minute bristles, curved at their extremities; its colour, ochreous-brown, broadly marked with black on the thorax and back of the abdomen, the wing covers being delicately striated with dark brown.—WILLIAM BUCKLER, Emsworth: December, 1872.

Captures of Lepidoptera in 1872.—The following is a list of a few of the Lepidopterous insects I observed in this district, or reared, during the wretched season of 1872. "Sugaring" was a complete failure nearly the whole of the year, and, for the most part, collecting of any kind was so much wasted time.—*Vanessa cardui*, Clare Hill; *Lycæna Arion*, Mr. Merrin again sent me eggs from Gloucester, but I had no more success with them than in former years,—the economy of this species still seems as great a mystery as ever; *Sesia bembeciformis*, common on poplar trunks at Birkby; *Arctia mendica*, not uncommon at Grimescar; *Amphydasis prodromaria*, produced from larvæ obtained by beating in Sherwood Forest during the previous year; *A. betularia*, one of the black variety, reared; *Boarmia roboraria*, one ♀ specimen from eggs sent me by Mr. J. P. Barrett, from New Forest moths; *Acidalia trigeminata* and *holosericeata*, also bred from larvæ sent by Mr. Barrett; *A. emutaria*, seven specimens emerged in August from eggs sent from Sheerness, early in July, by Mr. J. J. Walker,—the remainder of the larvæ are now hibernating (when fresh, the pink bloom on the wings of this species is most beautiful); *Scodiona belgiaria*, in the larval state, Crosland Moor; *Larentia cæsiata*, common on Norland Moor; *Emmelesia decolorata* and *Melanippe galiata*, not so common as usual; *Hypsipetes impluviata*, bred, larva from alder the previous autumn; *Cidaria immanata* and *Pelurga comitata*; *Ptilophora plumigera*, reared several specimens from eggs sent by the Rev. T. W. Daltry, of Madeley, the larvæ fed on sycamore; *Notodonta carmelita*, Mr. W. C. Marshall sent eggs from Cumberland moths, but the young larvæ died off miserably, though constantly supplied with fresh birch leaves; *N. dromedarius*, bred, larvæ from birch in Black Fir Wood the previous autumn; *Cymatophora flavicornis*, common on birch trunks in March, Black Fir Wood; *Leucania littoralis*, bred, larvæ from Wallasey sand-hills, fed readily on common field grasses; *Miana literosa*, Grimescar; *M. arcuosa*, very abundant amongst *Aira cæspitosa*, at Grimescar; *Agrotis agathina*, Mr. Norman sent larvæ from Forres, but, although some seemed to go down all right, no moths appeared,—does anyone succeed with this species? *Triphæna orbona*, var. *Curtisii*, reared a beautiful series from eggs sent by Mr. Norman, the majority of the specimens turning out to be the dark form; *Orthosia gypsilon*, larvæ from poplars at Clare Hill; *Xanthia citrargo*, reared a nice series from larvæ sent from Barnsley; *Tethea subtusa*, larvæ common on poplars at Clare Hill and Birkby; *Hecatera dysodea*, a nice series from larvæ sent me from Cambridge; *Polia flavocincta*, larvæ common on "Everlasting pea," in the garden at Clare Hill, moths in the autumn; *Dasypolia Templi*, one specimen in the stone quarries at Denby Dale; *Ebulea sambucalis*; *Scopula lutealis*, in profusion at Grimescar; *Eudorea cembralis*; *Phycis carbonariella*, Norland Moor.—GEO. T. PORRITT, Huddersfield: January 8th, 1873.

Lepidoptera observed in Sussex during 1872.—During the whole of the year, *Lepidoptera* were exceedingly scarce. Most of the insects mentioned in the following notes occurred singly. Sugar was, in many instances, a complete failure. *Leucophasia sinapis*, near Hailsham, not uncommon. *Colias Hyale*, only one specimen, near Lewes. *Melitæa Athalia*, a specimen near Battle, new locality. *Syrictus* alveolus*, a specimen of the variety *lavateræ*, near Battle. *Chærocampa porcellus*, a specimen near Lewes. *Procris Geryon* and *globulariæ*, near Lewes, June. *Calligenia miniata*, *Lithosia mesomella*, and *complanata*, not uncommon, near Battle. *Lithosia aureola*, one at sugar, Battle, June 15th. *Lithosia griseola* and *stramineola*, Lewes, in the same spot, the latter scarce. *Epione advenaria*, near Hailsham, sparingly. *Boarmia consortaria*, Battle, one at dusk, May 25th. *Tephrosia extersaria*, Battle, May 25th to June 15th, not uncommon, on sugar and at dusk, flying high up over birches; also occurred near Lewes. *Geometra papilionaria*, Battle, a few specimens. *Asthena sylvata*, Battle, rare this year. *Macaria notata*, Battle, one specimen, May 5th. *Melanthia albicillata*, near Lewes, at dusk, a few specimens. *Melanippe hastata*, near Hailsham, not uncommon. *Platypteryx lacertula*, Battle. *P. hamula*, near Hailsham, one specimen. *Cymatophora fluctuosa*, Battle, one on sugar. *C. or*, near Lewes and Battle, singly. *Diphthera Orion*, Battle, a few at sugar. *Acronycta leporina*, Battle, one at sugar. *Aporophila australis*, near Lewes, very scarce this year. *Luperina cespitis*, near Lewes, very scarce this year. *Noctua Dahlii*, Battle, on flowers of *Teucrium*, &c. *Cerastis erythrocephala*, one or two specimens occurred in the autumn. *Hoporina croceago*, near Lewes, on sugar, October. *Epunda lutulenta*, near Lewes, one on ivy bloom. *Phlogophora empyrea*, near Lewes, not uncommon, October. *Aplecta tincta*, Battle, a few at sugar and bramble blossom. *Hadena genistæ*, Battle, on sugar. *Cucullia asteris*, one specimen at Battle. *C. chamomillæ*, Battle, one specimen, May 20th. *Erastria fuscula*, Battle, one at sugar. *Herminia derivalis*, Battle. *Ennychia octomaculalis*, near Battle, &c. *Agrotera nemoralis*, a specimen in my collection taken by a friend, near Hailsham, on May 20th. *Crambus falsellus*, near Lewes, over an old thatch, July. *C. pinetellus*, Battle, singly. *Phycis betulella*, Battle, one specimen, July. *Achroia grisella*, Battle, in an old hive; I have some larva now feeding. *Sarrothripa Revayana*, near Lewes, one at sugar. *Tortrix dumetana*, near Lewes, July, not uncommon.—J. H. A. JENNER, Lewes: January 23rd, 1873.

Tortricidæ at Guestling.—I have done little in this group, but the following are the best I have hitherto met with:—*Halias prasinana*, *quercana* and *chlorana*; these all occur here, but only the first in any quantity: *Sarrothripa Revayana*, scarce; *Tortrix crategana*, one specimen; *T. sorbiana*, very abundant, flies in a frantic manner at dusk; *Dichelia Grotiana*, not uncommon, sometimes comes freely to sugar; *Leptogramma literana*, *Ditula semifasciana*, *Penthina salicana*, all these are scarce; *Sericoris littorana*, a few at Pett. *Euchromia purpurana*, *Sciaphila sinuana*; I met with single specimens of these this summer, the former at Pett. *Stigmonota redimitana*, scarce. *Lobesia reliquana*; I meet with a few specimens of this pretty species every spring. *Eupæcilia udana* and *E. rupicolana*; I have taken single specimens of both these species, the latter, which I took this autumn, was flying in a wood glade, where hemp-agrimony (*Eupatorium cannabinum*) was growing pretty freely. *Eupæcilia curvistrigana*; I was fortunate enough to

* *Syrictus*, Hope, 1837 (*Dynastide*); Boisd., 1840.—E. C. R.

take three specimens this year in wood paths (August 6th); I took a single specimen some years ago. *Cochylis stramineana* and *C. inopiana*; I have only met with single specimens of these two species.

The above is but a meagre list of species, and the more so as so many are represented by single specimens; I doubt not, however, that a want of perseverance in searching for them may account for this, although I believe the *Tortricidæ* are generally scarce here.—E. N. BLOOMFIELD, Guestling Rectory: November 7th, 1872.

The New Sugaring Lamp.—In recommending the new Sugaring Lamp in the January No. of this Magazine, I quite unintentionally omitted saying that the idea originated with Dr. White. I must apologize for this omission.

It may be quite true that an ordinary tinsmith can adapt the shilling "sponge lamp" to a sugaring lantern, but the circular form is too clumsy, and cannot be made to fit a flat lamp for the pocket. The reservoir in my lamp is quite shallow, flat, with square sides, and slides into a groove just above the match drawer; the ordinary shilling lamp, moreover, has no rack and pinion to raise or lower the wick, but is merely furnished with a slide to regulate the flame.

Finally, my burner, owing to this improvement, gives a larger light than the other, and is exceedingly cleanly to manipulate.—GEO. NORMAN, Cluny Hill, Forres, N.B.: February, 1873.

ENTOMOLOGICAL SOCIETY OF LONDON.—ANNUAL MEETING, 27th January, 1873.—Prof. WESTWOOD, President, in the Chair.

The following gentlemen were balloted for and elected Members of Council for 1873: Messrs. H. W. Bates, Butler, Grut, McLachlan, Müller, S. S. Saunders, F. Smith, Stainton, S. Stevens, Verrall, C. O. Waterhouse, Weir, and Westwood.

The following Officers for 1873 were subsequently elected, viz.: Prof. Westwood, President; Mr. R. McLachlan, Treasurer; Messrs. F. Grut and G. H. Verrall, Secretaries; and Mr. Janson, Librarian.

The President read an address on the progress of Entomology during the past year, and the business of the meeting concluded with the usual votes of thanks to the outgoing officers.

3rd February, 1873.—HENRY W. BATES, Esq., Vice-President, in the Chair.

Mr. William Cole was elected a Member.

Mr. F. Smith exhibited some Indian *Hymenoptera*, collected at Nuddea, in the district of Minchindipore (about 80 miles from Calcutta). Amongst them were a new species of *Astata*, and four or five beautiful species of *Nomia*.

Mr. McLachlan exhibited the quadrangular case of the larva of a Trichopterous insect, together with the larva itself preserved in glycerine. These had been placed in his hands by the Rev. A. E. Eaton (who found them in the Dove, a swiftly running stream in Derbyshire), and were supposed to belong to *Brachycentrus subnubilus*, as the larvæ of that species are known to manufacture quadrangular cases; but some doubt was expressed as to the species.

Mr. Champion exhibited specimens of a large species of *Pulex*, found by Mr. J. J. Walker in a mouse's nest in the Isle of Sheppy. Mr. Bird exhibited a specimen of *Cerastis erythrocephala*, from Darenth Wood.

Mr. Meldola exhibited a living Myriopod (*Spirobolus*) from San Francisco, and eggs of *Phyllium pulchrifolium* from Java.

Mr. Pascoe, referring to an observation by Mr. F. Walker in "The Entomologist," that the Fire-flies (*Luciola italica*) seen in abundance in Italy, had probably entered that country from the East, and were hindered by the Maritime Alps from occupying the Mediterranean coast of France, remarked that he had seen the insect in abundance in France between Cannes and the Var, and wished to ascertain if any Entomologist had noticed it farther westward in France.

Mr. A. Müller made some further remarks respecting certain pouch-galls found on the leaves of cinnamon from Bombay, exhibited to the Society in March last, which shewed that the question as to the originators of the pouch-galls could not be settled satisfactorily without further evidence.

The Rev. Mr. Eaton stated that he possessed a specimen of a *Trombidium* which had been taken by Mr. Benjamin Lee Smith in September last, in Spitzbergen; and also read a paper on the Trichopterous Family *Hydroptilidæ*.

Mr. A. G. Butler communicated a Monographic List of the species of the genus *Gasteracantha*, or Crab Spiders, with descriptions of new species.

ADDITIONS AND CORRECTIONS TO THE LIST OF BRITISH SYRPHIDÆ.

BY G. H. VERRALL.

Since my last communication to this Magazine (February, 1871) on the British species of *Syrphidæ*, I have observed several additional species, including four new to science, and have a few notes on others for publication.

1. *ASCIA QUADRIPUNCTATA*, Meigen.—I am convinced that this is only a variety of the species generally called *floralis*, Mg., as I have captured the females on several occasions in company with ordinary *A. floralis* in marshy lands.
2. *SYRPHUS CONFUSUS*, Egger.—This species, which I originally added to the British list from a specimen caught in this neighbourhood, I now believe to be only a variety of *S. albostrigatus*, Fallén; but, while the typical *albostrigatus* abounds in some large woods, where the males are most indefatigable hoverers, the typical *confusus* is more confined to gardens and meadows.
3. *SYRPHUS NIGRICORNIS*.—When at Loch Rannoch in June, 1870, I captured six specimens (4♂, 2♀) of a species which is, without much doubt, the *S. obscurus* of Zetterstedt's *Insecta Lapponica* (1838), but as the name *obscurus* was pre-occupied by Say (1824) for an American species, a new name is required, and I therefore propose that of *nigricornis*. The species is allied to *S. lunulatus*,

but is blacker and rather narrower, the legs being much blacker, and the antennæ quite black instead of yellowish-black, the pubescence on the scutellum is all black, instead of all yellow, and the yellow spots on the abdomen never extend to the edge.

4. *SYRPHUS ANNULATUS*, Zett.—I am now able to describe both sexes of this species for the first time, as it was originally described from the female, and only that sex has hitherto been recognised in connection with the name. I can, however, find no satisfactory distinction in the description of the male of *S. vittiger*, but the female is readily distinguished by the pale base of the hind femora. The species belongs to the "*ribesii*" group, from which I omitted it before, as Zetterstedt places it next to *S. cinctus* and *cinctellus*, which have the abdomen very narrow. It need only be compared with *S. lineola* and *vittiger*, as it has a black line down the middle of the epistoma; but, while the male *annulatus* has the legs luteous, with the basal half of the anterior femora black, and the hind legs all black except the knees, and the female has the legs nearly all luteous, except a broad black ring on the hind femora, which leaves the basal two-fifths of the femora luteous, the male *lineola* has the legs black, with the anterior knees and base of tibiæ luteous, and the female has them luteous, with the basal third of the femora black, and the hind legs all black except the reddish knees. *Vittiger* is especially stated by Zetterstedt to have the hind femora black, with only the tip yellow, and he knew the female of *vittiger* from several specimens, though he did once (Dipt. Skan. ii, 715) refer to it a specimen having the hind femora pale at the base, which he subsequently (*l. c.* viii, 3138) considered *annulatus*. *Vittiger* has been described by Schiner in his *Fauna Austriaca*, and he speaks of the hind femora being black, except at the tip, without any reference to sex. I can, however, find no character by which I am able to separate the males, nor have I seen any males which I believe to be distinct, though I have seen some females answering to the description of *vittiger*. In case the two names should be synonymous, *annulatus* has the priority by some years. I found it in some abundance on Shirley Common, on May 5th, 1872, about some furze bushes; I fancy, from the fragility of the specimens, that they had only recently come to maturity. I caught one female at Rannoch in June, 1870, and I have seen eight specimens (2♂, 6♀) caught by Dr. Buchanan White at Braemar, in 1871.

5. *SYRPHUS VITTIGER*, Zett.—If distinct from the last species, is also British, as I refer to it two females caught by Dr. Buchanan White at Braemar in 1871, and a female by myself at Rannoch in 1870.
6. *SYRPHUS LATIFASCIATUS*, Mcq.—*Abbreviatus*, Zett., must be added to the synonyms of this species, but *excisus*, Zett., may be withdrawn; as, according to Loew, it is a distinct species. Under no circumstances can the name *affinis* stand, as there is a prior *affinis* of Say.
7. *SYRPHUS BARBIFRONS*, Fall.—In my previous notes, I added to the British list *Melanostoma barbifrons*, on the authority of two (♂) specimens belonging to Mr. B. Cooke; since then I have examined a series of a *Syrphus* that I caught at Rannoch in 1870, which I considered to represent the *Scæva arctica* (♂) and *nitidula* (♀) of Zetterstedt. I am, however, informed by Loew that it is the species known on the continent as *Melanostoma barbifrons*, Fall., and that the species I had formerly thought *barbifrons* is new to science. The species I caught at Rannoch is a true *Syrphus*, but the epistoma of the male is very much darkened, so that some specimens might readily be thought to belong to *Melanostoma*. It belongs to the "*umbellatarum*" group, in which it is distinguished by its darkened epistoma, which, however, is always luteous between the antennæ, by its dark legs, and by the very small pair of spots on the second abdominal segment. It is most allied to *Syrphus lasiophthalmus* and *Melanostoma quadrimaculatum* (the species I had previously considered *M. barbifrons*); but *S. lasiophthalmus* has the eyes slightly hairy, the epistoma distinctly luteous on the sides, the abdominal spots all larger, and the pubescence on the breast-sides yellow instead of black, while *M. quadrimaculatum* has the eyes distinctly hairy, the epistoma quite black, and the abdomen marked with only four spots in the male, and unmarked in the female. Zetterstedt himself admits that his *S. nitidula* is the female of his *S. barbifrons*, and I think his *S. arctica* must represent the form of the male that I have caught, while his *S. barbifrons* would represent the more common form on the continent, in which the basal pair of abdominal spots are wanting. In opposition to this, however, Bonsdorff professes to have caught both sexes of *S. arcticus* and *barbifrons*. The species was one of the commonest at Rannoch.

8. *SYRPHUS PUNCTULATUS*, *sp. n.*

♂ ♀. *Oculis sub-hirtulis, epistomate flavo, linea media nigra, genis nigrescentibus, fronte æneo-nigra, tomentosa; antennis nigrescentibus, articulo tertio subtus basi luteo; thorace æneo, nitidulo, punctato, scutello flavido, pilis omnibus nigris; abdomine lineari, maculis transversis semi-circularibus luteis; pedibus nigrescentibus, genibus anterioribus (sæpissime tibiis totis, femorumque dimidio apicali) luteis; alis sub-hyalinis, stigmatè cinereo.*

Long. 4½—4¾ lin.

♂. Very closely allied to *S. lasiophthalmus*, Zett., but the eyes are slightly less hairy, the epistoma is always covered with yellow *tomentum*, except on the well-defined, rather shortened middle line, the middle knob seems rather more defined, the cheeks are darker and apparently more descending, the long black hairs on the occiput curved forward over the eyes are more numerous, and on the vertex nearly all the hairs are black; the antennæ have the third joint luteous at the base beneath, and also rather more pointed and angulated; the frons is more covered with *tomentum*; the thorax is not quite so shining, the punctuation being larger and coarser, the pubescence is all luteous, and not quite so abundant and rather shorter; the scutellum is yellower, its pubescence less abundant, shorter, and all black. The abdomen is less pubescent; the first pair of spots is larger and more triangular, running almost up the edge towards the basal corners; the spots on the third and fourth segments show a similar tendency, and are almost semi-circular, their upper-side being straight, with the hinder angles rounded off, and they run quite up to the basal corners of the segments; as these spots curve off so much before reaching the edge, the yellow hairs standing out from the edge at the basal corners of the segments are much fewer than in *S. lasiophthalmus*, since they follow the ground colour. The anterior legs are generally yellow, with only the basal half of the femora and the tarsi black, and the hind legs black, with the knees and base of tibiæ luteous, but they vary up to being almost as black as in *S. lasiophthalmus*.

♀. Differs from *S. lasiophthalmus* like the male, in the antennæ, epistoma, cheeks, pubescence, punctuation of thorax, &c., and on the scutellum the pubescence is entirely black, while in *S. lasiophthalmus* it is usually entirely yellow; in many of the specimens I possess, instead of the usual coppery longitudinal lines on the thorax, there appears a most peculiar coppery filagree work on the disc, arising, I presume, from the drying of the internal juices; the abdominal spots curve upwards considerably as they approach the edge, the second and third pairs being more rounded behind, and nearer the fore-margin.

This species has hitherto been confounded with *S. lasiophthalmus*, from which I consider it perfectly distinct; I have captured it in abundance near Shirley Common in May, and have also taken it at the Plashett Wood, near Lewes, at Boxhill and here (Denmark Hill).

9. *SYRPHUS COMPOSITARUM*, *sp. n.*

♂ ♀. *Oculis nudis; epistomate flavido-albo, peristomate lineaque media nigris; antennis nigrescentibus; fronte flavido-pollinosa, macula super antennis nigricante; thorace sub-nitente (♂), aut cærulescenti-æneo nitido (♀), scutello flavo, nigro-piloso; abdomine lineari, maculis bis tribus transversis, linearibus, sub-quadrangulis, stramineis; pedibus nigrescentibus, geniculis anterioribus testaceis; alis sub-vitreis, stigmatè pallido.*

Long. 4½—5 lin.

♂ ♀. This species belongs to the group containing *S. umbellatarum*, F., *lasiophthalmus*, Zett., *punctulatus*, Verr., *decorus*, Mg., *guttatus*, Mg., *flavifrons*, Verr., *nigritibiis*, Rond., *barbifrons*, Fall., and *auricollis*, Mg. From *umbellatarum* (its nearest ally) it is distinguished by its smaller, sub-quadrate basal pair of abdominal spots, which do not reach the edge; by the almost entirely black-haired scutellum; by the blackish-brown anterior tibiæ and tarsi, and blacker femora; by the duller thorax of the male; by the broader epistomatal line; by the more free second and third pairs of abdominal spots; by the black, instead of yellow, genitalia; by the broader dark middle line on the frons of the female, and smaller black spot above the antennæ; and by the thinner hind metatarsus, &c.: from *lasiophthalmus* and *punctulatus*, the bare eyes, paler epistoma, yellow cheeks, yellower scutellum, paler abdominal spots, and slight pubescence, at once distinguish it: *decorus* has the antennæ entirely, and the legs nearly all, yellow, &c.: *guttatus* and *flavifrons* are smaller, and have the epistoma and frons all yellow, the scutellum pale-haired, and have traces of a pale line down each side of the thorax: *nigritibiis* and *barbifrons* have the epistoma and front nearly all black, and the basal pair of abdominal spots, either very small or altogether wanting: and *auricollis* in the variety *maculicornis*, Zett., has the antennæ pale beneath the third joint, and has the abdominal spots trapezoidal or triangular, and much larger and yellow; its legs are also considerably more yellow.

As far as any previous notice of this species is concerned, I think it must be the *Scæva umbellatarum* of Zetterstedt, as he says (Dipt. Skan. ii, 734) "thorace sub-opaco ♂—pedibus nigris, geniculis anterioribus testaceis,—scutellum fusco-pilosum;" subsequently (*l. c.* viii, 3142) he says "thorax etiam in ♂, potius nitidus quam opacus "dicitur," which is exactly the case with my specimen; afterwards (*l. c.* xiii, 5098), he appears to have noticed the true *umbellatarum*, as he records some specimens from Gothburg and Holland, with the thorax shining in both sexes. Loew informs me that specimens sent him as types by Zetterstedt were true *umbellatarum*. The original description of Fabricius (Ent. Sys. iv, 307) proves his species to have been the one I have considered *umbellatarum*, as he says "Pedes antici testacei, "femoribus basi nigris, postici nigri." Schiner (Faun. Austr. i. 308) probably had *compositarum* before him, when he refers to the specimen separated in Schummel's collection as *S. albuguttatus*.

This species was abundant at Rannoch, in June, 1870, where I also caught one melanoid female: I have never seen *S. umbellatarum* from the north, but have caught it rarely at Lyndhurst, Penzance, and here (Denmark Hill).

10. *SYRPHUS FLAVIFRONS*, *sp. n.*

♂. *Oculis nudis; epistomate toto flavo-albo; antennis nigrescentibus; fronte flava, angulo superiore angustè nigrescente; thorace æneo, nitido, scutello pallido, pilis flavo-albis; abdomine lineari, maculis bis tribus flavis, liberis; pedibus nigris, genubus luteis, tibiis tarsisque anterioribus obscuris; alis sub-hyalinis, stigmatè fusco.*

Long. $3\frac{3}{4}$ —4 lin.

♂. Smaller than *S. umbellatarum* and considerably resembling *Platychirus scutatus* ♂; eyes bare, epistoma yellowish-white, yellower on the knob, and somewhat obscurely darkened on the sides of the mouth, there are several mostly pale hairs on the sides of the disc and close to the lower part of the eyes, the upper angle of the mouth is blackish; the cheeks are clear pale yellow, with pale pubescence; the frons is yellow, with just the upper angle blackish, it is clothed with a tolerable number of longish black hairs, which, however, do not spread over its middle; the vertex is rather elongate-triangular, æneous, with longish hairs, generally black, but sometimes those behind are luteous; antennæ dull blackish, third joint short ovate.

Thorax shining æneous, finely and very sparingly punctate, with faint indications, especially in front, of two dull dark lines down the middle of the disc, the pubescence all silky whitish-yellow; a yellow line along the sides forms a distinct spot on the shoulders, and a less distinct one on the upper corner of the hinder angles; the breast-sides have a whitish pubescence; the scutellum is bright yellow, with a slight æneous tinge, and the extreme corners æneous, it is clothed with not very abundant long silky whitish-yellow hairs; alulæ and their fringes yellowish-white; halteres yellow, obscure at the base. Abdomen linear, dull velvety-black, faintly transversely rugose; about the middle of the rather long second segment near the edge on each side is a very small distinct yellow spot; near each basal corner of the third segment, but not touching the margin at all, is a larger irregularly quadrate yellow spot; these spots are distant from each other rather less than their own breadth; on the same part of the fourth segment are similar but rather narrower spots, and the basal corners of the fifth segment are entirely yellow; the pubescence down the edge of the abdomen is whitish-yellow, rather long, decreasing in length to half way down the fourth segment, after which it is short and black; on the disc, the pubescence is slight and obscure, but the longer hairs seem pale, and the others rusty-black; the belly has only the ends and edges blackish, all the disc being whitish, with obscure markings on the sides of the second and third segments; the genitalia are very small and blackish. Legs dull black, the tips of the anterior femora dull luteous, the knees brighter, the hind knees very narrowly dull luteous, the anterior tibiæ and tarsi brownish, with a tendency to yellow at their tips, the hind trochanters somewhat luteous; there is a moderate whitish-yellow pubescence behind the anterior femora; the hind metatarsus is long, scarcely thickened. Wings slightly greyish, stigma distinct, brownish.

I caught three males of this species at Rannoch in June, 1870. It is, apparently, most allied to *S. guttatus*, Meigen, but I am informed by Loew that there are several distinctive characters; according to descriptions, *S. guttatus* has a much more conspicuous, sharply-defined line down the sides of the thorax, and a pair of conspicuous whitish spots before the scutellum, and paler legs than *flavifrons*.

(To be continued).

DESCRIPTIONS OF A NEW GENUS AND TWO NEW SPECIES OF
COLEOPTERA FROM JAPAN.

BY THE REV. H. S. GORHAM.

Since the publication of my paper on the *Endomychidæ* of Japan in the February No. of this Magazine, I have seen, in Mr. George Lewis's collection, two or three forms which either belong to this family, or, like *Symbiotes* and *Mycetæa*, may be associated with it. I now offer a description of a genus belonging to the true *Endomychidæ*. Another interesting genus allied to the genera mentioned must wait for closer investigation, and will probably require to be dissected.

Family ENDOMYCHIDÆ.

Tribe DAPSINI.

RHABDUCHUS, *genus novum*.

Antennarum clava articulo primo incrassato et interne dentato, sequentibus duobus multo latiore. Palporum articulus ultimus fusiformis. Prosternum retrorsum angustatum, coxas superans, medio concavum, apice rotundatum. Mesosternum oblongo-quadratum. Pronotum lateribus marginatis ut in Stenotarso, basi lineâ transversâ impresso, angulis posticis productis. Pedes longi, tarsi graciles, posteriores elongati. Corpus oblongum. Type *R. denticornis, sp. n.*

The singular insect for which I propose the above genus would seem, by the structure of its antennæ, allied to *Ædiarthrus*, Gerst., and also to have a general affinity with *Mycetina* and *Stenotarsus*. The remarkable form of the ninth joint of the antennæ, however, and the form of the thorax, combined with its long thin legs, are an association of characters dissimilar to anything yet described in this group. I regret having been unable to give the form of each part of the mouth, there being but a single specimen, which is apparently a female, the abdomen consisting of five segments.

RHABDUCHUS DENTICORNIS, *sp. n.*

Testaceus, sub-nitidus, pube brevi parce vestitus, crebre at obsolete punctatus, antennis nigris, capite thorace pedibusque infuscatis.

Long. 2 lin.

Oblong, head fuscous, crown smooth. Antennæ more than half as long as the body, entirely fuscous black, basal joint ovate, second short, about as long as wide, 3 a little longer and equal to 7; 4, 5 and 6 equal to each other, and shorter than 3; joint 8 short, equal to 2; 9 equal in length to the two preceding, triangular, the inner side with an acuminate tooth; 10 smaller, triangular, internally acuminate at the apex; 11 elongate, rounded externally, the inner edge straight. Thorax widest at the base, the posterior angles being produced outwards into an acute angle; the

sides sinuate; anterior angles rectangular, deflexed, from these the sides are rounded rather suddenly, becoming almost parallel again before the base; margined with a strongly impressed line, which does not meet the front margin,—the space between this line and the side being flattened and widest in front; base with an impressed transverse line, and the usual sulci very short; disc fusco-piceous. Elytra a little wider at the shoulder than the thorax, thence widened evenly to beyond the middle, narrowed gradually to the apex, of a uniform testaceous colour, clothed with a very fine pubescence of the same tint, very obsoletely punctured. Legs pitchy-red; apex of the femora and tibiæ darker.

Of this curious species I have seen but a single specimen, which is in Mr. G. Lewis's collection from Nagasaki.

Family CUCUJIDÆ.

Genus *Ino*, Castelnau.*

INO QUADRINOTATA, *sp. n.*

Nigro-picea, nitida; capite, thorace, abdomineque crebre, elytris parcius, punctatis; his maculis duabus albidis, anteriore oblongâ; antennarum basi, tibiis tarsisque rufis. Long. 2 lin.

The species now described adds another to the tropical forms already known to exist in Japan. Of the four species of *Ino* described, two are from New Guinea, one from Madagascar, one from Guadeloupe. *Ino quadrinotata* would seem allied to *I. trepidus*, Pascoe.

Head as wide as the thorax, eyes rather prominent. Sides of the thorax a very little widened from the base to about one-third of their length, thence narrowed strongly, and in a straight line to the base, the angle at which they would meet being rounded off, so that the width of the base is equal to that of the straight portion from the anterior to the middle angle. Antennæ a little longer than the head and thorax, their basal joint moderately swollen and red, the third half as long again as second, both of which are rufo-piceous; 4, 5 and 6 bead-shaped, a little longer than wide; 7—10 widest at apex; 11 oblong. Elytra covering more than half the abdomen, but leaving the two last segments and part of the third from the apex exposed, widened from the base for two-thirds their length, thence rounded into the suture; each with two pale spots, the anterior on the shoulder and oblong, the posterior near the apex and rounded, but both are ill-defined. The abdomen is widest where it quits the elytra, which it there equals in width, and its margin is rather elevated. Femora stout, pitchy-black, tibiæ pitchy-red, tarsi red.

Six individuals taken by Mr. G. Lewis are before me.

Generally distributed in Kiushiu; taken by beating old faggots, and once in great profusion, in May, under bark of the vegetable-wax tree.

Rusper: *March 11th, 1873.*

* 1835: *Ino*, Leach, in *Lepidoptera*, 1819.—Eds.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 7).

BY F. BATES.

METABOLOCERUS, *nov. gen.* (Sub-family *Ulominæ*).

♂. Near *Ulosonia* (Casteln.), differing in having the epistoma more broadly and somewhat more squarely truncated in front (the labrum being consequently more exposed), armed at or near the middle of the anterior border with a slender horn, more or less elongate and erect, and another, usually smaller and more pointed, or spine-like, at the inner corner of each eye; head not concave between the eyes; antennæ various, but usually shorter, and with the outer joints more or less strongly triangular and transverse; prothorax produced in front with two or three more or less elongate horn-like processes, which are directed forwards over the head, the two outer longest and stoutest, and continuous with the lateral margins of the prothorax or not; the central one (where it exists) usually smaller and much more slender; tarsi relatively somewhat shorter and stouter; body generally narrower, more parallel, a little less depressed, pilose or not.

♀. Head and prothorax unarmed, the latter rather deeply arcuate-emarginate in front.

This genus cannot be confounded with *Antimachus*, Gistel, on account of its differently formed head (especially the epistoma), antennæ, mentum, &c., whilst the peculiar armature of the prothorax will readily separate it from all the other genera of its sub-family.

M. PILOSUS, *sp. n.*

Oblong, sub-parallel, pitchy-brown, shining, sparsely clothed with rather long, erect, simple hairs; epistoma armed in the centre of its fore margin with an elongate, nearly erect, slender, cylindrical horn, obtusely pointed at the apex; a short, sloping, conical, pointed tooth arises from the inner corner of each eye; antennæ moderate, sparsely spilose, joints 6—10 triangular, perfoliate; prothorax depressed, subquadrate, a little wider than long, sides a little narrowed in front, a distinct median furrow, and an impression at each side the middle of the base, sparingly and irregularly punctured, the punctures large and much scattered near the sides; the anterior processes (or horns), two in number, arising within, and distinct from, the lateral margin, elongate—extending beyond the anterior margin of the head—moderately stout, sub-cylindric, slightly curved, slightly converging, obliquely truncated, and faintly notched at the apex; the space between the bases of these processes is moderately excavated, or concave; elytra seriate-punctate, intervals faintly and not closely punctured: the 1st, 2nd, 3rd, and 5th costiform for about one-fourth to one-third their length from the apex; the 7th, 8th, and 9th costiform throughout their

length; the 8th extending to the humeral angle, where it unites with the 7th and 9th; apically, the 3rd, 7th, and 9th are united, the 5th (which is the shortest of all) being enclosed by the 3rd and 7th, and the 8th by the 7th and 9th; under-side sparsely pilose, flanks of prothorax and sterna sparingly and rather coarsely punctured; legs shining chestnut-red.

Length from apex of thoracic process to apex of elytra, 5 lin.; width of elytra $1\frac{3}{4}$ lin.

♀. Smaller and shorter (long. $4\frac{1}{4}$ lin.), head and prothorax simple, the latter rather deeply arcuate-emarginate in front, and with the median furrow apparent only at the base; elytra with the 7th, 8th, and 9th intervals only faintly costiform.

Hab.: New Granada; two examples, ♂ and ♀.

M. CLYPEATUS, *sp. n.*

Smaller than the preceding, the epistomatal horn situated on the disc (not at the middle of the fore margin), and, together with the horn arising from the inner corner of each eye, moderately elongate, semi-erect, sub-cylindric, obtuse at apex; antennæ short, joints 7—10 rather strongly transverse, very moderately perfoliate; prothorax decidedly transverse, a little convex, moderately punctured, the punctures largest near the sides, an impression at each side the middle at the base, but without any trace of a median furrow, the anterior processes three in number, two at the sides—arising within, and distinct from, the lateral margin—robust, moderately long (extending over the head to a little beyond the level of the insertion of the antennæ), slightly converging, obliquely truncated, and distinctly notched at the apex; the 3rd is central, about one-third the length of the two others, cylindric, strongly compressed, rounded at apex; elytra seriate-punctate, almost obsoletely so at the apex, intervals (except the 7th, which is slightly elevated) flat, very minutely and very sparsely punctulate; flanks of prothorax with a few small, scattered punctures; legs shining chestnut-red; body hairless.

Length, $3\frac{1}{2}$ lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: Cumana; a single (♂) example.

var. ? BREVICORNIS.

In this, which I doubtfully consider as a variety of the preceding, or one in which the full development of the armature of the head and the prothorax has been arrested,—the three horns on the head are faintly represented by small conical tubercles; the three thoracic processes are much shorter, the two outer (which do not nearly extend to the level of the insertion of the antennæ) are stout, conical, and not at all convergent; the central one is reduced to a short, compressed, conical tooth; the rest entirely as in the typical form, save that it is smaller and shorter.

Long. 3 lin.

Hab.: Cumana; a single (♂) example.

M. FRYI, *sp. n.*

Entirely shining rufous, with the legs and palpi yellowish; antennæ with joints

6—10 slightly produced (sub-serrate) within; epistoma armed in front with a short, sloping, strongly compressed, conical tooth, or horn; at the inner corner of each eye a short, spine-like horn, sloping towards the front; prothorax depressed, transverse, finely and not closely punctured, with several shallow impressions along the base, the median furrow faintly (except at the base) impressed; the processes in front three in number, the two lateral robust, continuous with the lateral margins of the prothorax, extending over the head to a level of the insertion of the antennæ, obliquely truncated at the apex, their inner side concave; the 3rd is central, compressed, sub-cylindric, of nearly equal length to the two outer; elytra seriate-punctate, obsoletely so at the apex, intervals very minutely and sparingly punctulate; flanks of prothorax rugosely punctured, but not closely so.

Length, $3\frac{1}{2}$ lin.; width of elytra, $1\frac{3}{8}$ lin.

Hab.: "Colombia;" a single (♂) example in the Collection Laferté.

This species differs sub-generically from those preceding in having the two outer thoracic processes continuous with the lateral margin of the prothorax.

METULOSONIA, *gen. nov.*

Near *Peltoides*, and having quite a similar facies, but readily separable by the eyes being larger, wider, more prominent, and but slightly narrowed in the middle by a prolongation of the antennary orbits in front, or by an expansion of the cheeks behind; the head smaller and narrower; the antennary orbits smaller, narrower, less prominent, not angular, and not projecting laterally beyond the eyes; the prosternal process horizontal, acutely prolonged behind, and penetrating deeply into the mesosternum, which is vertical in front, and cleanly and deeply excavated in the form of a V. As secondary characters, the form is more elongate-oval, or elliptical; the median basal lobe of prothorax narrower, more prolonged, so that a straight line drawn from its lower edge would nearly include the hind angles; the 3rd joint of antennæ relatively shorter; and the prothorax has, near the sides, the larger scattered punctures characteristic of *Ulosonia* and the allied South American genera of this section of the sub-family.

The form of the head in this genus very closely approaches that in *Ulosonia*, but the epistoma is shorter, more broadly truncated in front, and not at all reflexed at the lateral borders; it is not concave between the eyes; it is unarmed, but there is a decided tuberculiform elevation near the inner margin of each eye. The form of the head in *Peltoides* more closely resembles that in *Alphitobius* than in either the present genus or in *Ulosonia*.

METULOSONIA HORNI, sp. n.

Elongate-oval, pitchy-brown, glossy; head sparingly but rather coarsely punctured; epistoma finely and rather closely punctured; prothorax finely and not closely punctured, near the sides are some scattered, large, coarse punctures; a well-marked oblique impression at each side the median basal lobe, which has also an ill-defined, shallow depression on its middle; scutellum sparsely but distinctly punctured; elytra seriate-punctate, the punctures rather large, especially at the sides; intervals flat, faintly punctulate; under-side and legs dark reddish-brown, glossy, almost impunctate; flanks of prothorax faintly longitudinally wrinkled; abdomen a little coarsely (but not closely) punctured, and reticulate-rugose at the sides; prosternal process with a well-marked impressed line down the centre, between the coxæ, the end acutely pointed; intercoxal process somewhat rounded at apex.

Length, $3\frac{1}{4}$ lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: Panama; a single example.

METULOSONIA EGAENSIS, sp. n.

Much smaller and relatively broader than the preceding, entirely reddish-castaneous, glossy, the entire punctuation finer; the prothorax a little less narrowed at the sides anteriorly, the front angles a little less prominent, and somewhat depressed, the median basal lobe not depressed on the middle; elytra wider behind the middle, the apex being consequently more broadly rounded; prosternal process a little more compressed behind the coxæ, the point less acute, the longitudinal central depressed line obsolete; intercoxal process narrowly rounded at the apex.

Length, $3\frac{1}{8}$ lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: Ega, Upper Amazons; one example.

PELTOIDES CAPENSIS (Dej. Cat., p. 220—*Oöpiestus*).

Size and general aspect of *P. senegalensis*, Cast.; the only differences I can detect are (in *capensis*) the stronger punctuation of the entire surface, both above and beneath, the rows of punctures on the elytra especially being larger; the prosternum longitudinally rugose, or finely plicate, before the coxæ, and the prosternal processes plain, not convex or sub-carinate down its length, and rather strongly and closely punctured. The antennæ appear somewhat shorter and stouter, but these organs vary in this respect in different individuals of *P. senegalensis*.

It will require the comparison of a number of examples to determine whether these slight differences are sufficiently constant to give them a specific value. At present, I possess but a single example of *P. capensis*, from Port Natal.

15, Northampton Square, Leicester :
February, 1873.

DESCRIPTION OF *LYCÆNA ARTHURUS*, A NEW EUROPEAN BUTTERFLY.

BY J. COSMO MELVILL, B.A., F.L.S.

LYCÆNA ARTHURUS, *sp. n.*

♂. *Alæ suprâ violaceæ, subtus cinereo-fuscæ, ab L. Arione differentes ocellis omnibus absentibus, iis circa marginem exteriorum exceptis, nigris, maculis quoque discocellularibus bene utrinque definitis; corpus cæruleo-albescens.*

Habitat, Chamounix, Switzerland; one specimen alone captured, June 28th, 1872, by Miss Evelyn Melvill.

Expanse of wings, about 1" 4".

The wings are violet-blue, with rather broad blackish hind-margins. The under-wings beneath are greenish at the base; fringe white; antennæ similar to those of *L. Arion*. Mr. A. G. Butler has examined the insect, and states his opinion that it is a "typical species," as it differs very much from all the known forms of *Arion*, its nearest congener. My sister, who captured it, informs me that its manner of flight was markedly more wild and irregular.

Manchester: *March*, 1873.

[We presume that the above insect is what systematic writers would call an aberration of *L. Arion*.—Eds.].

DESCRIPTION OF A NEW BUTTERFLY FROM JAVA.

BY THOMAS CHAPMAN.

EUPLEA LORRAINI, *sp. n.*

Upper-side: ♀. Both wings deep black. Fore-wing: three small white spots near the costa beyond the middle; a transverse band of six white spots near the apex; the second, third, and fourth from the costa much larger than the rest; within the outer margin an irregular row of fourteen white spots; a white dot just beyond the cell. Hind-wing: a line of twelve white spots within the hind margin, and within a few smaller white dots towards the apex.

Under-side: Brown, marked as the upper-side, with the addition of a white dot near the extremity of the cell in the fore-wing.

Expanse, $3\frac{1}{10}$ inches.

Glasgow: *March 1st*, 1873.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the genus ACOCEPHALUS, and descriptions of two species not hitherto recorded as British.

In the 'Entomologist's Monthly Magazine' for 1865—1866, the Rev. T. A. Marshall gives descriptions of the British species of *Acocephalus* as known to him, but the synonymy of some of them requires transferring, and I simply proceed to show the changes necessary.

(Sub.) Family IASSINA, Stål.

Genus *ACOCEPHALUS*, Germ.

1. *A. rusticus*, Fab., as described by Marshall is correct. It is extremely variable in colour and size, so that innumerable varieties have been described as species. Fieber cites 18; and probably does not exhaust the list.
2. *A. bifasciatus*, Lin. The references and description in this case are also correct. Fieber mentions five varieties of this insect which have been described as species.
3. *A. albifrons*, Lin. Marshall refers *albiger*, Germ., to this species, but Fieber gives it as a variety of his *polystolus*, a description of which will follow.
4. *A. rivularis*, Germ. Fieber refers *histrionicus*, Fall., to this species, and not to *histrionicus*, Fab., as stated by Marshall.
5. *A. histrionicus*, Fab. With the above alteration, Marshall's description and references are correct.
6. *A. arenicola*, Marshall. Fieber, to whom I submitted one of Marshall's examples, returned it to me as only a var. of *albifrons*: and with this opinion I confess I must agree.
7. *A. agrestis*, Fab. Removed from this genus by Flor (followed by Fieber) to his genus *Strongylocephalus*. There can be no doubt about the correctness of the removal, as the most cursory glance at the shape of the head will at once determine. The head in *Acocephalus* is generally pointed, shovel-shaped and hollow on the upper surface; while that of *S. agrestis* is convex.

ACOCEPHALUS INTERRUPTUS, Fieb.

NIGRITUS, Kirschb. var.

Dark pitchy-brown, not shining.

Head: pitchy-brown, deeply concave, with a central and two elevated side lines, posterior margin yellow, anterior margin above finely spotted with yellow, be-

neath brown. *Face* yellow, on each side of the centre of the anterior margin a blackish fovea. *Clypeus* brown. *Cheeks*: apex brown, enclosing a yellow spot next the base of the clypeus. *Eyes* black. *Rostrum* piceous.

Thorax: *pronotum* black anteriorly, and with five longitudinal depressions; lateral margins narrowly whitish; posteriorly sordid yellowish-white. *Scutellum* dark brown, apical half paler. *Elytra* dark pitchy-brown; *clavus*—1st nerve whitish at the apex; *corium*—anterior margin with a longish white streak beyond the middle, joined to a transverse wavy white streak, sometimes interrupted, and reaching the inner margin; before the centre of the disc a somewhat reniform white spot; inner margin and apex narrowly white. *Sternum* pale yellow. *Legs* brownish-yellow; *thighs*—1st pair brown, with one or two short, pale, longitudinal streaks and spots, extending from the base to beyond the middle; 2nd and 3rd pairs pale, apex brown; *tibiæ*—1st pair dark brown or pitchy; 2nd pale, base brown, apex dark brown; 3rd pitchy-brown, darkest at the apex, spines brown; *tarsi* of all the pairs pitchy, base of the 1st joint narrowly clear brown.

Abdomen beneath black, sides of the 5th segment with a short, transverse whitish streak; posterior margin of the 6th yellow. *Connexivum* beneath black, outer and inner margins narrowly yellow; genital plates of the ♂ brown.

Length, $1\frac{3}{4}$ lines.

This species is somewhat broad for its size, has a 'squat' appearance, and is unlike any of the varieties of *A. rusticus* (which it resembles only in its dullness) known to me.

I possess a single ♂ example, taken by myself either at Eltham or Bexley on 26th July, 1863.

ACOCEPHALUS POLYSTOLUS, Fieb.

Dark or pitchy-brown, slightly shining.

Head yellow; in front spotted with brown, the spots minute and more or less united; down the centre, from the base to about the middle, is a slightly elevated, very fine brown line. *Face* and *cheeks* yellow, the former with an extremely narrow dark brown or pitchy margin. *Antennæ*: two basal joints white. *Eyes* pitchy-black.

Thorax: *pronotum* yellow, very finely wrinkled transversely; posterior half dark brown. *Scutellum* brownish-yellow, basal angles and a central line dark brown. *Elytra* dark or pitchy-brown; *corium*—finely shagreened between the nerves; anterior margin at the base yellowish, and with two white spots of irregular shape, placed one before and one beyond the middle; 4th nerve with two white spots in a line with those on the anterior margin; apex white. *Sternum* yellow. *Legs* yellow; *tibiæ*—1st and 2nd pairs at the apex broadly black, 3rd brownish, apex black; *tarsi* pitchy.

Abdomen beneath pitchy-brown; genital plates of the ♂ pitchy-brown.

Length, $1\frac{1}{2}$ lines.

The white spots on the elytra more resemble those on *A. interruptus* than any of the varieties of *A. albifrons*, to which last insect

it is allied, and from which it may at once be separated by the gradual tapering of its elytra from the base to the apex. In *A. polystolus* also the elytra are not so shining or transparent in appearance.

I have a single ♂, evidently taken some years ago, but unfortunately without reference as to time or place of capture.

Fieber enumerates six other species, none of which seem likely to occur here, except it be *A. granulatus*, Fieb., taken at Crefeld, or *A. obtusifrons*, Kirschb., from Rippoldau.

Lee: January, 1873.

NOTES ON BRITISH TORTRICES.

BY C. G. BARRETT.

(continued from p. 215.)

Ditula augustiorana, Haw.—Professor Zeller states that this species, which is so abundant with us, is not found in Germany, except in the south.

Ptycholoma Lecheana, Linn.—The very dark form of the female, which sometimes occurs with us, seems to be unknown in Germany.

Notocelia Udmanniana, Linn.

Pardia tripunctana, Fab.

Spilonota roborana (Schiff.) Treitschke.—This name is superseded by Dr. Wocke in favor of *cynosbana*, Fab. (Systema Entom. 1775).

It seems, however, difficult to understand why *cynosbana*, Fab., should be adopted. Fabricius says simply "upper wings grey, tipped with white," which would apply to twenty different species. He also makes it synonymic with *cynosbatella*, Linn., which is described as having a crested thorax, and therefore cannot be a *Spilonota*. The only clue to Wocke's reason for this determination is, that *cynosbatella* (*cynosbana*) is described as feeding in rose buds, which is undoubtedly (and unhappily) the habit of the present species.

Treitschke (1830) describes it as *roborana*, and this name it seems advisable to retain.

Spilonota rosæcolana, Dbld.—Wocke admits this species into his catalogue with (*præc. var.?*). It certainly is not, however, a variety of *suffusana* (*trimaculana*, Haw.), but perfectly distinct. Here, at Norwich, where *suffusana* is abundant, *rosæcolana* seems totally absent. Indeed, I think that Wilkinson is wrong in saying that it is pretty generally distributed over the country. I have only seen it from the south of England. It always frequents rose trees, while *suffusana* is most partial to hawthorn.

Professor Zeller writes: "I must agree to its being a good species, which I never saw alive, and which has not yet been observed in Germany."

Spilonota trimaculana, Haw.—This is *suffusana* of Zeller and of Doubleday's list, and this name is also adopted by Wocke, apparently because, although Haworth's name is much the oldest, this species is considered to be too nearly related to *Grapholita (Steganoptycha) trimaculana*, Donovan, to bear the same name. I confess that this does not appear to me sufficient reason for sinking Haworth's name.

Spilonota amœnana, Hüb. (248), Tr., Dup.—Wocke sinks this name in favor of *incarnatana*, Hüb. (191); and, as that name was adopted by Heinemann, it is probably correct; but Hübner's plates appear to bear no dates. This species appears to vary according to soil. On the rocks of the Hill of Howth, where it was common, the specimens were quite different in colour from those of the neighbouring sand-hills and the opposite English coast; and inland specimens appear to be larger and more rosy.

Lithographia campoliliana (Schiff.), Tr.—Wocke corrects this to *subocellana*, Donovan (1806), this name being long anterior to that of Treitschke, while Schiffermüller's name is without sufficient description.

According to M. Jourdheuille, the larva feeds under leaves of willows, in October.

Lithographia cinerana, Haw.—Mr. Doubleday, in his list, sinks this into a variety of the following species, as does Wocke also; and Professor Zeller says "I do not believe in its being distinct from *nisella*. *Nisella*, L., is a rarer variety connected with *cinerana* by passages." In this country we find *cinerana* by far the rarer variety, but I think that it cannot be retained as a distinct species.

Lithographia nisella, Clerck.—M. Jourdheuille says that the young larvæ, after leaving the catkins of poplar and willow, are polyphagous.

Lithographia Penkleriana, F. v. R.—According to M. Jourdheuille, the larva of this species feeds in the catkins of alder, in March.

Phlæodes tetraquetra, Haw.

Phlæodes immundana, F. v. R.—I once found this species swarming among some alders, in August, in a marsh. With this exception, I always found it scarce, as Wilkinson says.

Phlæodes Demarniana, F. v. R.—According to M. Jourdheuille, the larva of this species feeds in catkins of birch and poplar, in April.

Phlæodes crenana, Hüb.

Norwich: March, 1873.

Note on Tribolium confusum, Duv., and Ptinus testaceus, Ol.—Though these two species have not yet been inserted in the catalogue of British *Coleoptera*, they have, I think, a good claim to a place there. Duval, in describing *T. confusum*, says that it exists in several of the French collections, but is confounded with *ferrugineum*, and is, in fact, the species described by Mulsant as *ferrugineum*. Of *Ptinus testaceus*, Boieldieu says that it inhabits temperate Europe, and is rather common in wheat granaries. I have specimens of each of these species in my British collection; but I do not think that I captured any of them myself, so that I can give no clue to their locality.—D. SHARP, Eccles, Thornhill: *March 17th, 1873.*

[Dr. Sharp some time ago called my attention to these species, pointing out the *gradual* dilatation of the antennæ towards the apex in the *Tribolium*, of which I find an example mixed with *ferrugineum* in my own collection. It is rather larger, broader and flatter than the latter species, with the thorax more rounded at the sides in front. The *Ptinus* is, I believe, the 5 *sp.*—? of Mr. Waterhouse's catalogue, readily distinguishable from *P. fur* by its want of any tufts of white hair in the middle of the back of the thorax.—E. C. R.]

Curious locality for Homalium Allardi.—To the insects mentioned at p. 8 of the Ent. Anh. for 1873, as having occurred in association with birds, may be added the above-named somewhat rare beetle, which (with others) I have taken in my parrot cage, when hung outside the house in warm weather.—T. MORLEY, 57, John Street, Pendleton, Manchester: *March, 1873.*

[This Staphylinid seems of nomadic habits. If I remember rightly, Dr. Sharp has taken it in the heart of London—I think in the precincts of Guy's Hospital,—about old bones.—E. C. R.]

Clytus erythrocephalus in England.—Mr. Rye's recent note reminds me that I took a specimen of this insect in my garden here, many years ago. As I had received some large boxes containing skins of birds and insects from North America during the previous winter, I thought the beetle had probably been brought over in the pupa state in the wood of which the boxes were made. I think I gave the specimen to the late John Curtis.—HENRY DOUBLEDAY, Epping: *March 3rd, 1873.*

Note on Elater pomonæ.—I think it desirable to note for the information of others whose supposed exponents of this species may have been derived from the same source as my own, that all the specimens (4 in number) bought by me of the late Charles Turner as representing *E. pomonæ*, and stated to have been taken by him in the New Forest, are merely small examples of *E. lythropterus* (which appears to vary from 6½-lin. to 4½-lin.), with fulvous thoracic pubescence. The precept "*Caveat emptor*" should, of course, have been borne in mind by me.

As regards the species supposed by me to be intended by the name of *E. pomonæ*, I have just seen an example, dug, with others, out of a dead birch tree in Sherwood Forest, by Mr. J. Ray Hardy. This one, a ♂, agrees with another ♂ example, obtained by me through Mr. E. W. Janson, in differing at once from the immaculate form of *sanguinolentus* by its lesser bulk, rather less convex thorax (which is more straightly contracted towards the front, more finely punctured, and clothed with

long and thin *black* hairs), the longer joints of its antennæ, its thinner tarsi, and somewhat flatter and more acuminate elytra. In fact, it rather more recalls *elongatulus*; from which its slightly larger size, unicolorous and brighter red elytra, of which the interstices are more convex, longer antennæ, &c., will serve to distinguish it. Mr. G. R. Waterhouse (Trans. Ent. Soc. 5, n.s., p. 90) originally pointed out the long *black* thoracic hairs of Stephen's specimen of *pomona*, and of others of his own from the New Forest taken by Turner (which I have seen, and of which the males agree with the two above mentioned), as the distinguishing character between that species and *sanguinolentus*; and Dr. Candèze (Mon. Elat. ii, p. 445), merely referring to a single specimen of Mr. Waterhouse's from the New Forest, is evidently somewhat sceptical as to its specific value, and also mentions only the black hairs as separating it from *sanguinolentus*. He quotes Stephen's "Man. of Brit. Coleopt. p. 179;" referring to which work, I find the following description, &c.:—"Rather narrow; black, clothed with *fuscous* pile (Stephens refers to black hairs in describing other species); thorax slightly convex; elytra blood-red, *tip black*, punctate-striate; tarsi pitchy (L. $4\frac{1}{2}$ — $5\frac{1}{2}$ l.). Darenth Wood; Barmouth." How this is to be reconciled with Candèze's "*longius nigro-pubescent, elytris immaculatis*," passes my comprehension: nor does it appear to me safe to refer Stephens's specimen above mentioned to the species described in the 'Manual.'—E. C. RYE, Park Field, Putney, S.W.: *March*, 1873.

Note on Otiorhynchus tenebricosus.—I should be glad if any correspondent could send me a British type (♂ if possible) of this species. None of my own somewhat long series can, I think, be correctly referred to it. They all seem to quadrate better with *O. lugdunensis*, Boh., Schön., Stierlin (De Marseul, Mon. Otiorhynch., L'Ab. x, p. 147), in which there is no frontal foveola, and the male has the anal segment of the abdomen somewhat deeply foveolate at the tip as well as rather coarsely striated. In *tenebricosus* there appears to be a frontal foveola, and the ♂ has the anal segment strongly striated, but with no fovea at the apex. De Marseul states that it is common in the Jura, fails in Austria, and is replaced in France by *lugdunensis*.

It would be somewhat curious if it turn out that we have neither *tenebricosus* nor *fuscipes* in Britain.—ID.

Notes on winter captures of Coleoptera.—An occasional spare hour or two has, since Christmas, produced the following species, among many others, within less than a mile and a half of Sheerness. As I do not keep a collection of *Coleoptera*, the insects have been sent to my friend Mr. Champion, to whom I am indebted for the names of most of the species.

In stack-refuse:—*Falagria sulcatula*, *Callicerus obscurus*, *Homalota orphana*, *Bryaxis Waterhousii*, *Hister neglectus*, *Atomaria munda* (by hundreds) and *gutta* (common), *Anommatus 12-striatus*, *Monotoma spinicollis*, *rufa*, and *longicollis*, *Corticaria Wollastoni*, *Throscus obtusus* (not very rare), *Apion Schænherri* (about twenty specimens, many of which, unfortunately, were badly broken, possibly through having hibernated), *A. confluens* and *lævicolle*, and *Phyllotreta sinuata* (one ♂ specimen). *Trogophlæus foveolatus*, about eight specimens, in company with *T. halophilus*: *Bagöus laticollis* and *inceratus*, in flood refuse on the banks of a brackish ditch. *Syncalyptra*

hirsuta, Sharp; a few specimens, along with *Harpalus parallelus*, by shaking moss growing on a heap of sea gravel. *Polystichus* in abundance, by digging in the loose clayey earth, at the bottoms of posts by the road-side.

Three days' collecting in the Chatham district, in January, February, and March respectively, also produced a fair number of beetles, the best being as follows:—*Trachys troglodytes*, one specimen, shaken out of moss on a chalky hill-side; the moss from similar places producing *Mycetoporus nanus* (several), and *splendens*, *Syncalypta hirsuta* (rarely), *spinosa* (in profusion), *Trachyphlaeus alternans* (not rare), *squamulatus* and *spinimanus* (abundant), *Tychius lineatulus*, *Mantura Matthewsi*, &c. *Pediacus dermestoides*, one specimen under bark of a felled oak; *Abraxus globosus*, not rare in the wet rotten wood of an old ash, in which I also found *Quedius infuscatus*; *Paromalus flavicornis*, *Cerylon histeroides* and *ferrugineum* (both in considerable numbers, the latter being the commoner), and *Orchesia undulata*, under the loose bark of a prostrate and very rotten beech; *Asclera cærulea*, in quantity, in a very large old decayed stem of ivy; *Tomicus Saxeseni*, a few in a sound oak log; *Platynaspis villosa*, two or three hibernating in a fungoid growth on a small dead beech tree.

At Iwade, at the end of January, I met with *Crepidodera pubescens* in some numbers, in a very limited quantity of flood-refuse on the banks of a small stream.—JAMES J. WALKER, 7, West Street, Blue Town, Sheerness: March 11th, 1873.

Notes on rare British Coleoptera from the Manchester district.—I have obtained the following species from the neighbourhood of Manchester:—

Monohammus sartor; one, bred by me from a larva found feeding in American spruce. *M. sutor*; one, given to me alive by Mr. M. Ward, by a friend of whom it was taken at rest on one of the pine supports of a coal mine near Dukinfield. *M. dentator*; an example of this North American species, which has on several occasions been taken in England, was given to me by a friend, who took it amongst American pine logs in the wharf of the Bridgewater Trust. *Donacia obscura* and *crassipes*, *Athous rhombeus*, *Euglenes oculus*, *Dorcatoma chrysomelina* and *Phlaetoria Stephensii*, Cheshire; *Otiorhynchus maurus* and *Aphodius fatidus*, Staly brushes.—JOSEPH CHAPPELL, 1, Naylor Street, Hulme, Manchester: February, 1873.

Note on Apatura Iris and A. Ilia.—I am not surprised to see Mr. Doubleday again in the field in defence of the European "species" of *Lepidoptera*; but I am surprised that he should speak of "the Asiatic form of *A. Ilia*," seeing there are two very different forms in Japan alone, one of them exactly like the European type, the other, *A. Here*, Felder, more like Mr. Tritton's insect.

When Mr. Doubleday says that *A. Ilia* never feeds on oak, he of course makes a mental reservation in favour of Mr. Tritton's specimen, found "in the larva state, upon the oak." That an unusual food-plant does in some circumstances affect the character of the imago seems pretty evident. Darwin says (*Variation of animals and plants*, vol. ii, p. 280): "it is well known that caterpillars fed on different food, sometimes either themselves acquire a different colour or produce moths different in colour." That this is not mere assertion, may be seen by Michely's experiments (*Bull. Soc. Imp. d'Acclimat.* viii, p. 563), as also by those of Mr. Gregson in the case of *Abraxa grossulariata* (*Proc. Ent. Soc.*, January 6th, 1862), confirmed by

Mr. Greening (Proc. Northern Ent. Soc., July 28th, 1862). For analogous facts in *Hymenoptera*, see Westwood (Modern Class. Ins., vol. ii, p. 98); also Dr. L. Möller (Die Abhängigkeit der Insecten, 1867, p. 70).

That difference of food-plants, and not the soil these grow in, is the cause of some of these variations, I have myself proved in the case of *Odonestis potatoria*; young larvæ of which were sent to me from Brighton by my friend Mr. Herbert Goss, and produced the same varieties when similarly fed both at Brighton and South Kensington.

I still think Mr. Hammond's suggestion worth following up; let young larvæ or eggs of *A. Iris* be placed upon oak leaves, and if the caterpillars refuse them, this one fact will be worth a host of suppositions. I have known some caterpillars in straits to eat almost anything.—A. G. BUTLER, 17, Oxford Road, Ealing: March 3rd, 1873.

[The following passages occur in the account given by the supposed breeder of the specimen of *A. Ilia*:—

"I have no recollection what the chrysalis was like."

"The butterfly did not come out of the chrysalis for so long that I thought it was dead."

Now, the writer of the above quoted remarks looked daily at his *Ilia* chrysalis for several weeks, wondering why the butterfly did not emerge, and yet has no recollection what the chrysalis was like. One would have thought that any one who had such a curious chrysalis under such circumstances, could have made a sketch of it from memory, even after an interval of twenty years. Spiritualists and others, ready to accept any statement, however improbable, may believe the tale; we candidly confess that we do not.—EDS.].

List of the species of Lepidoptera first discovered in Britain by the late Mr. J. C. Dale.—*Hesperia Actæon*, Esp.; August 15th, 1832; Lulworth. *Lælia cænosa*, Hb.; July 26th, 1819; Whittlesea Mere. *Psyche nigricans*, Curtis; June 18th, 1824; West Parley. *Celæna Haworthi*, Curtis; July 23rd, 1819; Trundle Mere. *Leucania littoralis*, Curtis; July 8th, 1824; Mount Misery. *Boarmia cinctaria*, W.V.; June 2nd, 1823; Brockenhurst. *Fidonia brunneata*, Steph.; July 8th, 1825; Dunkeld. *Carsia imbutata*, Hübn.; August 8th, 1825; Loch Katrine. *Acidalia straminata*, Tr.; July 31st, 1820; Parley Heath. *Stenia punctalis*, W.V.; July 6th, 1822; Weymouth. *Scoparia Daleana*; August 8th, 1825; Rannoch. *S. alpina*, Dale; July 11th, 1825; Scheshallion. *S. ulmella*, Dale; July 13th, 1844; Borden. *Crambus latistrius*, Haw.; July 3rd, 1821; Parley Heath. *C. furcatellus*, Zett.; July 19th, 1825; Ben Lawers. *C. Warringtonellus*, Staint.; July 3rd, 1835; Bear Wood. *C. uliginosellus*, Z.; June 25th, 1815; Glanvilles' Wootton. *Retinia sylvestrana*, Curtis; August 12th, 1845; Parley Heath. *Cerostoma asperella*, L.; September 8th, 1815; Glanvilles' Wootton. *Acrolepia betulella*, Curtis; August 4th, 1837; Castle Eden Dene. *Gracilaria imperialella*, Mann; May 25th, 1840; Glanvilles' Wootton. *Coleophora Frischella*, L.: July 11th, 1831; Portland. *Asychna terminella*, Westw.; June 8th, 1836; Glanvilles' Wootton. *Pterophorus similidactylus*, Dale; July 26th, 1830; Glanvilles' Wootton. 24 species in all.—C. W. DALE, Glanvilles' Wootton: February 5th, 1873.

Chærocampa Celerio at Cromer.—A few days ago, some insects captured last autumn, by a lady, at Cromer, were brought to me for names; among them were four specimens of *C. Celerio*, but in wretched condition. The same lady took, also at Cromer, a specimen of *Tanessa Antiopa*.—W. H. HARWOOD, Colchester: January, 1873.

Description of the larva of Anisopteryx æscularia.—On the 3rd of April last, I received from Mr. W. J. Skelton, of Faversham, eggs of this species. Some of the young larvæ had emerged on the way, and the remainder of the eggs hatched immediately. The larvæ grew rapidly on hawthorn, and by the middle of May were going down. The full-grown caterpillar may be described as follows:—Length about an inch, slender, cylindrical, and of uniform width throughout; head globular, slightly broader than the second segment; skin soft and smooth. Ground colour bright green, strongly tinged with yellow; head uniformly green. A dark green line, very narrowly edged with grey, forms the dorsal stripe; the sub-dorsal and spiracular lines greyish-white; and between the sub-dorsal and spiracular lines is a very fine pale grey line. The segmental divisions yellow, and the spiracles black. Ventral surface uniformly bright green, with the segmental divisions yellow.

By the end of May all the larvæ had gone down, and the imagos from them are now emerging; nineteen males had emerged when the first female put in an appearance.—GEO. T. PORRITT, Huddersfield: March 11th, 1873.

Occurrence in Britain of Halonota grandævana, Zeller.—The fortunate captor of this fine species is Mr. C. Eales, of South Shields, who took a single specimen on July 6th, 1872, flying over "ballast heaps" near that place. It is a small, pale variety of the species, being only one inch in expanse, and having the markings obsolete, except a faint indication of the outer edge of the basal blotch. The brown dots along the costal and hind margins are, however, rather distinct. Mr. Eales tells me that when flying it bore a close resemblance to *Tortrix icterana*, for which he at first took it. I have submitted it to Professor Zeller, to whom I am indebted for its name, and also for fine and well-marked specimens from the Alps, from which the following description has been taken:—

HALONOTA GRANDÆVANA, Zeller. — Head, palpi, thorax, and abdomen pale brownish-grey, antennæ brown, eyes black; fore-wings broad, ashy, much irrorated with minute, pale brown streaks and dots; markings, when present, very pale brown, consisting of the strongly angulated outer edge of the usual basal blotch, and a narrow, broken, oblique central fascia, interrupted above the inner margin; costal and hinder margins spotted with pale brown, cilia ashy; hind-wings pale grey, darker at the apex, cilia whitish. Alar. exp. 1—1½ in.

It seems to be a widely distributed species, occurring in Northern and Western Germany, and on the shores of the Baltic. Its larva feeds in the roots of *Petasitis albus* and *Tussilago farfara*, and probably also in those of *Petasitis vulgaris*.

Wocke places this species in a separate section of his genus *Grapholitha*, the nearest British species being *Mixodia Hawkerana* on one hand, and *Catoptria expallidana* on the other. It is, however, in spite of its broad wings, closely allied to *Halonota turbidana* and *inopiana*, near which it is placed by Heinemann.—CHAS. G. BARRETT, Norwich: March, 1873.

Dragon-flies at sea.—The very wide distribution of many species of Dragon-flies is well known to all who have given their attention to those insects, and is hardly to be wondered at, considering the great development of the wing-muscles and the strength of the nervures. Yet, on the other hand, many species with all the external attributes of physical strength, appear to be extremely local; and one is tempted to believe that an imperious migratory instinct has often more to do with the geographical range of some species, than mere power of wing. The species with the widest distribution is undoubtedly *Pantala flavescens*, Fab., which is found over the greater part of the globe, excepting in Europe (for we cannot but regard its reported occurrence in England* otherwise than as accidental, or based on mistaken evidence). The next most widely spread species is *Tholymis Tillarga*, Fab., which is found in all tropical and sub-tropical Asia, Australia, and Africa, in the islands of the Pacific, and even in Chili. In part of April and May, 1856, I observed numbers of these at sea during a protracted calm in the lower part of the China Sea. They did not settle on the ship, but flew leisurely at some little height over the surface of the water, apparently as much at home as if hawking over the paddy-fields of the adjacent islands. One specimen then caught is still in my collection. No doubt they were taking advantage of a (to them) congenial atmospheric condition, in order to make an over-sea journey. It would not be unnatural to suppose that the rivers of the country where they had been bred were dried up by the excessive heat, and that they were seeking localities favourable for the development of their future progeny; but this must not be taken for granted, because the familiar *Libellula quadrimaculata* of the temperate regions of the Northern Hemisphere is a notorious wanderer, without the excuse of a drought.—R. McLACHLAN, Lewisham: *March*, 1873.

On mounting small insects for microscopic observation.—Something has lately been said upon the subject of mounting insects; the following plan will prove a good one for the smaller *Diptera*:—Take an ordinary microscope slide and fasten to it three vulcanite rings for cells (these are cheap, and easily procured), in each of which a Dipteran should be set out; as soon as it is killed, fasten its body to the glass in the centre of the cell, by gum or cement, then put out the legs, and when these are dry, set the wings, taking care to use as little gum as possible; then fasten a circular talc or very fine glass lid to the cell, label it, and the specimen is complete. Each slide should represent one sex of a species; one with the back upwards, a second with the legs towards you, and a third dissected. Such a collection is cheaply preserved, takes little space, and is at once available for the microscope. I have tried the plan with *Aphides* and minute *Diptera*, and it seems to me that the lesser *Staphylinidæ* might also be advantageously mounted in the same manner.—R. C. R. JORDAN, 35, Harborne Road, Edgbaston, Birmingham: *Feb. 10th*, 1873.

The Zoological Record.—The appearance of the volume for 1872 has been vexatiously delayed, owing to the Recorder of the lower animals having failed to fulfil his engagements. We are happy to announce, however, that the Committee have resolved not to wait for him, but to bring out the other parts at once; and before this number of the Magazine is published, these will be in the hands of the

* A specimen (described as *Libellula Sparshalli*) is supposed to have been taken in Horning Fen.—R. McL.

Members and Subscribers of the Zoological Record Association. The Insecta, as usual, occupy much space, and the recorded notes on the publications on that division of Zoology in 1871 amount to 234 pages. Entomological students are certainly not diminishing in number. New Subscribers should at once forward their Subscription (£1) to Mr. H. T. Stainton, Mountsfield, Lewisham, London, S.E.—EDS.

ENTOMOLOGICAL SOCIETY OF LONDON, 17th February, 1873.—Prof. WESTWOOD, President, in the Chair.

A. E. Hudd, Esq. (formerly a Subscriber) was elected an Ordinary Member, and Dr. H. Burmeister a Foreign Member.

Mr. Bond exhibited long series of bred specimens of *Acronycta psi* and *tridens*, with preserved larvæ of the two species. The *tridens* had all been reared from pear. He remarked that the dark specimens so often occurring in *A. psi* were never represented in *tridens*, and that the latter always possessed a pinkish tint in fine fresh bred specimens, which, however, was very evanescent.

Mr. Müller exhibited the egg-case of some species of *Mantidæ*, and a case of a species of *Psychidæ* formed of pieces of twig arranged spirally; these had been sent from India by Mr. Rothney.

Prof. Westwood exhibited two dipterous larvæ discharged by a woman in a clot of phlegm. They appeared to belong to *Psila rosæ*, which is known to feed upon carrots, and he suggested, when they were submitted to him, that the person had possibly been eating raw carrots, which, upon enquiry, was found to be probably the case. These larvæ had lived for three days in alcohol. He also exhibited tubercles on vine-stems, probably formed by a beetle of the genus *Otiorynchus*. Mr. Müller remarked that Mr. Riley had recorded a similar habit in an American beetle (*Baridius Sesostris*, Lec.). Prof. Westwood further exhibited roots of vine dilated and constricted in a joint-like manner, which he thought was probably owing to former attacks of *Phylloxera*.

Mr. Briggs exhibited parallel series of the large and small form of *Anaitis plagiata*; both had been taken in Tilgate Forest in June in separate years, which proved that the small form was not a second brood as commonly supposed.

Mr. H. W. Bates read a paper on the Geodephagous *Coleoptera* of Japan. He described or enumerated 241 species, whereof 118 were new and chiefly collected by Mr. George Lewis. Nine genera were peculiar to Japan; 44 genera were common to Japan and Western Europe; 52 European genera were not found in Japan, and 38 from Japan were not found in Europe. One genus had only previously been known from North America.

Mr. Müller read a list of entomological works and papers published up to the year 1862, no notice of which was to be found in Dr. Hagen's 'Bibliotheca Entomologica'; he expressed a wish that other Entomologists would, in like manner, make known any similar omissions that might be detected by them.

Mr. Smith read a translation of Prof. Siebold's paper on the salivary glands of the Honey-Bee. Prof. Siebold had obtained honey by feeding bees upon malt. Mr. Smith further read a list of the *Tespidae* and *Apidae* occurring in Japan, chiefly from materials collected by Mr. G. Lewis and his native assistant; of 73 species, 49 were previously unknown. He remarked that the distinctness of his *Apis nigrocincta* from *A. mellifica*, recently questioned by Dr. Gerstäcker, had been abundantly confirmed by the discovery of a queen of *A. nigrocincta*.

3rd March, 1873.—Prof. WESTWOOD, President, in the Chair.

Mr. Noah Greening and Mr. Edward Charles Buxton were elected Ordinary Members.

Mr. Howard Vaughan exhibited a box containing about 200 specimens of Japanese *Lepidoptera*, collected by Mr. Henry Pryer near Yokohama. Several appeared to be new species and some very closely resembled common British species.

The President remarked that Mr. Higgins had shown him a specimen of a *Cremastochilus* from Japan, which was identical with a species taken by Mr. Lord on the West Coast of North America.

Mr. F. Smith exhibited some insects bearing a striking resemblance to each other, although belonging to different Orders. Thus, *Euglossa dimidiata* and another *Euglossa*, a genus of bees, had a striking resemblance to two species of the dipterous genus *Asilus* from South America; also *Abispa splendida*, one of the *Vespidæ*, and an insect of the dipterous genus *Laphria*, both from New Holland; also a bee of the genus *Megachile* and one of the *Asilidæ*. With regard to the last-mentioned insects, Mr. Smith noticed that the *Asilus* not only resembled the bee in general appearance, but also was furnished on the under-side with a brush, in the same manner as in *Megachile*, although it was not apparent for what purpose the insect required it. The President remarked that, when he was at Casa Brucciata, near Ancona, he observed several insects of the genus *Osmia* extracting the black pollen from poppies; and on the sandy shore he noticed the same insects collecting sand on their ventral brushes. He therefore concluded that the brushes were used, not only for collecting pollen, but also for collecting grains of sand to carry to the nests which he observed them in the act of constructing on walls.

Mr. Champion exhibited *Bagous brevis*, Schön., an insect new to the British fauna, taken by Dr. Power (see p. 242 of the present Vol.).

Mr. Müller directed attention to an article in the 'Petites Nouvelles,' explaining a method of obtaining the silk from cocoons which had been broken through by the insects, and that the silk so obtained from the damaged cocoons was equal in quality to that obtained from the perfect cocoons, and did not require to be carded.

The President remarked that the library at Oxford had lately been much infested with *Anthreni*; and he was glad to observe that there was a paper by Dr. Emery, in the 'Bulletino della Società Entomologica Italiana,' on a new method of preserving collections from their ravages.

17th March, 1873.—Prof. WESTWOOD, President, in the Chair.

M. Ernest Olivier, of Moulins (France), grandson of the old French entomologist of the same name, was elected a Foreign Member.

Prof. Westwood exhibited an exceedingly rare species of *Paussus*, from Abyssinia.

Mr. Smith exhibited a further collection of *Formicidæ* collected by Mr. Rothney, chiefly in the immediate vicinity of Calcutta. The collection was in beautiful condition, and Mr. Smith paid a high compliment to the industry and intelligence exhibited by Mr. Rothney in his researches in this department of entomology. Connected with Mr. Rothney's collection, Mr. Smith made another exhibition of what were apparently three examples of the Ant *Sima rufogriseum* placed side by

side, but the middle specimen was in reality a spider of the genus *Salticus*, having its anterior legs purposely removed, and then presenting a wonderful resemblance to the Ant, which, like it, inhabits trees.

Mr. Cole exhibited a series of magnificent species of *Bombycidae* sent from Natal by Dr. Seaman.

Mr. Bates said that Mr. Darwin had put to him a question affecting the theory of sexual differences in the eye-like spots on butterflies. Mr. Weir considered that the number of these spots on the under-side of *Pararge Hyperanthus* were more numerous in the ♀ than in the ♂, and Mr. Butler thought that differences of this kind existed in the genus *Drusillus*.

Mr. Bates read a paper on the Geodephaga of China, complementary to that recently read by him on the Japanese species of the group. Many of the species were collected by Mr. George Lewis at Kewkiang, in North China, and five-sixths of these occurred also in Japan.

Mr. Dunning read a further note on *Atropos pulsatoria*, with reference to Dr. Hagen and Mr. W. Arnold Lewis. Mr. Dunning said that he had been sanguine enough to expect that when he had pointed out Mr. Lewis' mis-statement in the charge made by him against Dr. Hagen, it would have been at once withdrawn. However, instead of this having been done, Mr. Lewis had repeated his charge, and stated that the difference between Mr. Dunning and him was only one of words. Mr. Dunning said, as this was Mr. Lewis' understanding of what he had written, he was not surprised that Mr. Lewis had misrepresented Dr. Hagen, and that Mr. Lewis must entertain a very low estimate of the intelligence of entomologists, if he thought they would be convinced by such a verbal quibble. Mr. Lewis had brought fresh charges against Dr. Hagen with reference to *Termes fatidicum*, but Mr. Dunning said he had not previously alluded to this case, and that it was as if Mr. Lewis, in prosecuting a man for bigamy, had said in reply to the defence, that at any rate he had been guilty of forgery. Mr. Dunning declined to go into this matter, and concluded by paying a high compliment to the labours of the distinguished entomologist who had been thus maligned by Mr. Lewis.

Prof. Westwood, in asking the Meeting to return a vote of thanks to Mr. Dunning, said it was like breaking a fly upon the wheel, and he was sure that Dr. Hagen would have the good sense not to feel serious annoyance at the silly attack Mr. Lewis had thought proper to make upon him.

Mr. Müller made some remarks with reference to a beetle (*Araocerus coffeæ*), which he had taken alive in 1862, at Basle, while watching the unpacking of a bale of coffee from Java. He had lately received a letter from a friend at Basle, stating that he could now take any quantity of the species in that town. He thought this fact showed how insects living on merchandize are spread along the main trade routes, and become gradually acclimatized—Basle being one of the chief continental markets for storing foreign merchandize.

Mr. Müller also stated that a case of ground nuts (*Arachis hypogæa*) arrived in London in the summer of 1863, from Sierra Leone, and that the husks were riddled, and the kernels half eaten, by myriads of larvæ and perfect insects of *Tribolium ferrugineum*, accompanied by the corresponding stages of a species of *Rhizophagus*, preying on the former. The cargo was allowed to remain during the months of August, September, and October, the whole being rendered worthless through the delay and ignorance of the owner.

ON THE PECTINICORN COLEOPTERA OF JAPAN, WITH DESCRIPTIONS OF THREE NEW SPECIES.

BY CHAS. O. WATERHOUSE.

The following species have already been recorded from Japan:—*Lucanus maculifemoratus*, Motsch., *Cladognathus inclinatus*, Motsch., *Clad. Motschulskyi*, C. Waterh., *Eurytrachelus platymelus*, Saund., *Macrodercas niponensis*, Voll. (*M. rectus* and *M. rugipennis*, ? Mots.), *M. cribellatus*, Motsch., *M. striatipennis*, Motsch., *M. opacus*, C. Waterh.

To these must be added the following new species of *Ægus*, of which several specimens were brought from Japan by Mr. G. Lewis.

ÆGUS SUBNITIDUS, *sp. nov.*

♂ (*var. minor* ?). *Niger, subnitidus, sub-depressus, mandibulis arcuatis, cylindricis, ad basin dente acuto abrupte armatis; capite fere ut in Æ. lævicolle; thorace nitido, suprâ parcius (latera versùs dense et fortiter) punctato; elytris nitidis, fortiter crenato-striatis, interstitiis 3, 5, 7 sat dense punctatis, suturâ interstitiisque 1, 2, 4, 6 parcius et subtiliter punctulatis; lateribus dense et fortiter punctatis.*

Long. cum mandib. 8 lin.

Closely allied to *Æ. Formosæ*, Bates, but distinguished by the lesser punctuation (when comparing specimens of about the same size), and cylindrical mandibles, which are not gradually dilated into a triangular tooth at the base, but have an abrupt, sharp tooth.

I can find no satisfactory character whereby to distinguish the ♀ from that of *Æ. lævicollis*.

The two following species of *Figulus* also appear to be undescribed:

FIGULUS BINODULUS, *sp. nov.*

Elongate, parallel, slightly convex, black. Head slightly concave above; anterior margin nearly straight, gently emarginate at the base of each mandible; the clypeus obtusely bidentate. The side of the head between the outer base of the mandible and the canthus of the eye is in the direction of an angle of 45° with the anterior margin, and is slightly emarginate; canthus rounded, depressed; the head broadest in a line with the front of the eyes, contracted behind; the upper surface with a few punctures on the forehead, moderately closely and strongly punctured on the canthus and about the eyes. The mandibles are short and strong, when closed they interlock for about half their length. Thorax a little broader than long, rather broader than the head, the sides parallel, anteriorly cut out to receive the head, the anterior angles rather prominent and rounded, the posterior angle broadly rounded; the surface impunctate, with the exception of a strongly punctured furrow in the middle, and some irregular larger punctures towards the sides, the sides very delicately and sparingly punctured; the anterior margin is furnished in the middle with

a single tubercle directed forwards. Elytra scarcely as broad as the thorax, a little longer than the thorax, head and mandibles together; the five dorsal striæ are deep, and not visibly punctured, the sixth is slightly punctured, and the seventh more distinctly, the eighth and ninth are composed of not very deep punctures; the dorsal interstices are gently convex. Length, $6\frac{1}{2}$ lin. (13 mill.); width, 2 lin.

Hab. : S. Japan.

Coll. Lewis and British Museum.

Variety, immature. A specimen has the three outer striæ of the elytra composed only of punctures. Length, $6\frac{3}{4}$ lin.

FIGULUS PUNCTATUS, *sp. nov.*

Head concave above, thickly and strongly punctured, the anterior margin is emarginate between the mandibles, the clypeus is almost imperceptibly bidentate; the side between the outer base of the mandible and the canthus of the eye is slightly oblique and very slightly emarginate (not nearly so oblique as in the former species); the canthus is narrow, with a very slightly prominent obtuse angle (nearly a rectangle) in front; very gently curved, terminating posteriorly in an obtuse angle, longitudinally canaliculate between the eye and the outer margin, which is thickened. The head is broadest in a line with the back of the eyes. The mandibles are curved and acuminate, with a single tooth in the middle on the inner side. The thorax is broader than the head, rather broader than long, with a broad, strongly punctured furrow in the middle, on each side of which the surface is sparingly and thickly punctured, towards the sides it is strongly and thickly punctured; there is a distinct tubercle on the anterior margin; this margin is gently emarginate to receive the head, the anterior angles are evenly rounded, the sides are sub-parallel, the posterior angles are broadly rounded. The elytra are the same width as the thorax, and have the five dorsal striæ deep and only the fifth scarcely visibly punctured, the sixth to the ninth are distinctly and strongly punctured, becoming less deep towards the margins; the dorsal interstices are scarcely convex, and are impunctate. The sides of the thorax and the shoulders of the elytra are minutely crenulate.

Length, 5 lin.; width, $1\frac{1}{2}$ lin.

Hab. : S. Japan.

Coll. Lewis and Brit. Mus.

British Museum: *March 21st*, 1873.

ON A NEW COLEOPTEROUS GENUS FROM JAPAN.

BY T. VERNON WOLLASTON, M.A., F.L.S.

FAM. CORYLOPHIDÆ ?

Genus APHANOCEPHALUS.

Corpus sub-rotundatum, hemisphaericum, convexum, nitidum, supra calvum, subtus remote et parce sericatum: prothorace sub-semicirculari, postice latitudine elytrorum ad basin, angulis posticis leviter productis acutis, antice vix excavato sed truncato et paululum elevato (caput parvum sub-perpendiculare fere tegente), ad latera anguste sed distincte marginato; scutello magno, triangulari: elytris apice

integris, pygidium tegentibus, ad latera grosse incrassato-marginatis : alis amplis : prosterno inter coxas anticas obtuse declivi ; mesosterno antice in medio rotundate producto sed vix lobato ; metasterno magno, convexo, antice recte sed postice arcuatim truncato ; abdomine e segmentis 5 composito, 1^{mo} magno, 2^{do}, 3^{tio}, 4^{to}que brevibus, transversis, æqualibus. Antennæ (prothorace haud longiores) 10-articulatæ, valde et subito clavatæ, articulo 1^{mo} magno elongato clavato, 2^{do} multo minore subovali, 3^{tio} (elongato) 4^{to} et 5^{to} gracilibus, longitudine decrescentibus, 6^{to} 7^{mo} et 8^{vo} gradatim subglobosis, 9^{no} et 10^{mo} clavam magnam abruptam solidissimam (vix perspicue divisam) ovalem sed antice truncatam efficientibus. Labrum coriaceum, sub-quadratum, antice integrum ac breviter parceque ciliatum. Mandibulæ sub-triangulares, apicem versus valde incurvæ acutissimæ et profunde bifidæ, atque mox intra apicem denticulo minuto brevi instructæ, dein (longe infra hoc) denticulo altero elongato gracili incurvo (apice bifido) auctæ, et inde (in emarginatione internâ) membranâ densissime ac minutissime pectinato-fimbriatâ repletæ. Maxillæ bilobæ, inarmatæ ; lobo externo elongato, subrecto, apice dense piloso ; interno brevior sed subrecto, angusto, dense barbato. Palpi maxillares articulo 1^{mo} minuto, 2^{do} maximo inflato, 3^{tio} paulo angustiore brevissimo transverso, ultimo elongato fusiformi basi truncato (antice sub-attenuato) ; labiales articulo 1^{mo} minuto, 2^{do} magno inflato, ultimo fusiformi basi truncato. Ligula sub-quadrata, apice membranacea integra et etiam sub-rotundata (nullo modo emarginata), postice magis coriacea. Mentum (nisi fallor) valde membranaceum. Pedes sub-contractiles, sub-graciles, antici parum late, intermediis latius, postici latissime distantes ; tibiis elongatis, gracilibus, inarmatis ; tarsis (ut mihi videtur) vere 3-articulatis, articulis 1^{mo} et 2^{do} sub-æqualibus subtus paulo productis ac longe pubescentibus, sed haud bilobis, 3^{tio} elongato, unguiculis magnis simplicibus munito.

Ab "*Aphanes*," e visu absconditus, et "*Cephale*," caput.

The affinities of this curious genus, which is founded on a small insect captured by Mr. G. Lewis in the Japanese Archipelago, are extremely difficult ; for, whilst it possesses some of the characters of the *Coccinellidæ* and others of the *Endomychidæ*, its freedom from a securiform last joint to its maxillary palpi would (even alone) seem to remove it from the former, whilst the fact of its feet being composed (as it appears to me) of only three articulations (for I can detect no trace of a minute third one in the central region of the second), debars it equally from them both. On the whole, taking into account the reduced number of its antennal joints (which, at the utmost, cannot be regarded as more than ten), its hemispherical outline, and the significant shape of its peculiarly coloured prothorax, which is nearly entire in front, almost concealing from view the small and sub-perpendicular, or dependent, head, and has the posterior angles rather acutely produced, as well as the proportions of its under-segments and its largely-developed scutellum and wings, I am inclined to believe that it will be more natural to treat it as a gigantic and aberrant member of the *Corylophidæ* ; though at the same time I am

fully aware that in its maxillæ being distinctly bilobed, and its feet (as I cannot but think) strictly trimerous, it is removed in two very important particulars from the members of that family. Still, tarsal joints are so apt to be difficult, occasionally, of precise determination, that it is not impossible that I may be mistaken in defining them in this instance as positively only three in number, and that an excessively diminutive articulation *may* be concealed at the base of the elongated terminal one; in which case *one* at all events of the points in which it disagrees with the *Corylophidæ* would be taken away.

In many of its secondary details, *Aphanocephalus* is sufficiently in harmony with certain of the types around *Corylophus*,—such, for instance, as the somewhat inflated second joint, and the fusiform ultimate one, of its maxillary and labial palpi, as well as its unemarginated ligula and upper lip; but in the unusually abbreviated *third* joint of its maxillary palpi it is singular; and its mandibles (which are deeply bifid at their tip, and have a minute denticle immediately within the apex) are remarkable for being furnished with a sharp, incurved, and minutely *cleft* additional tooth, considerably below the denticle to which I have just alluded, and at the commencement of the membranaceous portion which fills up the large internal cavity. In its antennæ, only nine articulations can be distinctly counted (a number which, no less than that of *ten*, is quite in keeping with certain groups of the *Corylophidæ*); but it is evident that their extremely solid and abrupt club is in reality made up of (at all events) two, and that they should more properly therefore be defined as 10-jointed; and the coarse margin of its elytra, in conjunction with the narrower one of its prothorax, gives the genus an additional feature which ought not to be overlooked.

The only family (with the exception of the *Trichopterygidæ*) in which, so far as I am aware, the feet are strictly 3-articulate is the *Lathridiadæ*; but it would be almost preposterous to suppose that *Aphanocephalus* can have anything in common, beyond the abnormal number of its tarsi joints, with the members of that department: and yet a few of its *other* peculiarities likewise, more particularly as regards the construction of its antennæ and capitulum, are by no means distantly paralleled in (for instance) the genus *Cholovocera*.

APHANOCEPHALUS HEMISPHERICUS, *n. sp.*

A. sub-rotundatus, hemisphæricus, nitidus, supra convexus calvus et æneo-viridinctus, sed subtus minutissime parceque sericatus ac rufo-piceus; capite parvo, subperpendiculari (fere e visu abscondito), piceo-ferrugineo; prothorace elytrisq. ad

juncturam latitudine æqualibus, subtilissime levissimeque punctulatis, illo subsemicirculari angulis posticis acute leviter productis, ad latera (anguste marginata) et antice gradatim suffuse ferrugineo, his ad latera crassius marginatis; antennis pedibusque infusate testaceis. Long. corp. lin. circa $1\frac{1}{2}$.

Habitat insulas Japonicas, præcipue sub foliis dejectis a Dom. G. Lewis repertus.

Teignmouth: April, 1873.

ADDITIONS AND CORRECTIONS TO THE LIST OF BRITISH SYRPHIDÆ.

(concluded from p. 256.)

BY G. H. VERRALL.

11. MELANOSTOMA QUADRIMACULATUM, *sp. n.*

♂ ♀. *Nigra, oculis hirtulis; fronte epistomateque latis; antennis nigro-piceis; scutello brunneo, abdomine vel maculis quatuor flavis (♂) ornato vel toto nigro (♀); pedibus nigro-piceis.* Long. $3\frac{1}{2}$ — $4\frac{1}{2}$ lin.

♂. Eyes rather hairy; the black punctulate frons and epistoma are wide, the middle knob of the latter shining, they are clothed with abundant erect black hairs, slightly longest on the frons, and leaving the middle of the epistoma bare; the face is rather descending, the eyes extending downwards much less than usual, leaving the cheeks unusually broad; in profile, the frons appears inflated, the epistoma descending straight to the slight, but distinct middle knob; the wide cheeks are clothed with black hairs, but the cilia round the back of the head are pale yellow; there is a bare-looking space on the lower half between the back of the head and the eyes, which, however, in another light, is seen to be clothed with numerous short black hairs; the vertex is clothed with rather long black hairs, yellow behind on the occiput; the antennæ are pitchy-black, the third joint often with a brownish reflection, the arista bare.

Thorax dull black, faintly punctate, clothed with a long, tolerably abundant pubescence, except on the fore part (this pubescence is generally all pale yellowish except just about the base of the wings, but smaller specimens frequently have the pubescence nearly all black; on the breast-sides it is long, shaggy, and black); the scutellum is brownish, rather dull, with an extra long yellow pubescence round the edge, more whitish on the disc; alulæ pale yellow, their edges and the knob of the halteres yellow. Abdomen rather dull bluish-black, rough but scarcely punctate; near the basal corners of the third and fourth segments are elongate yellow spots not touching the fore margin, and only indistinctly, if at all, connected with the edge; the hind margins of the fourth and fifth segments are obscurely reddish; the pubescence round the edge is all long, black, except at the base of the third, fourth, and fifth segments, where it is yellow, on the disc are scattered yellowish hairs; the genitalia are black and rounded, with black pubescence; belly dull blackish, the spots shining through obscurely. Legs pitchy-black, front tibiæ very slightly brownish; pubescence on the front femora long, abundant, black at the tip, yellowish about the base, on the middle pair not quite so abundant, and on the hind pair there is a slighter yellowish pubescence in front near the base, and a short,

inconspicuous, mostly black pubescence on the rest; the short pubescence on the front tibiae is often conspicuously yellowish down the inside and on the basal joints of the tarsi; the hind tibiae are thin at the base and rather bent just below the middle, hind tarsi long and thin. Wings distinctly tinged with grey, stigma brownish, conspicuous.

♀. All black; frons broad, its pubescence short, black and abundant, the extreme margins of the antennal space are luteous; cheeks with grey tomentum and pubescence, the cilia on the back of the head grey, almost whitish above and at the back of the vertex; thorax and scutellum with rather abundant pale greyish-yellow pubescence, the tuft on the breast-sides also greyish-yellow; the scutellum with a distinct yellowish hue on the disc; alulae and halteres paler than on the male. Abdomen shining black, or blackish-brown, rather coarsely but sparingly punctate, the hind margin of the fourth and fifth segments slightly reddish; the pubescence not scarce, but fine, all pale, except at the end of the third segment, on the hinder half of the fourth, and on all the fifth except the basal corners; in some lights there appears a trace of pale tomentum near the basal corners of the third and fourth segments, where the yellow spots are in the male, and I have found in one case these spots faintly visible; the legs are coloured as in the male, their pubescence is almost as abundant, but all the long hairs are pale; the ovipositor is somewhat conspicuous.

This species must be rather common in Scotland, as I have seen a large series captured by Dr. Buchanan White (whom I have to thank for my specimens) at Kinnoull on March 25th, 1871, and another large series caught by him at Braemar in May, 1871. The two specimens belonging to Mr. B. Cooke which I originally called *M. barbifrons*, are, I expect, from one of the northern English counties. I originally considered this species to represent Fallén's *Scæva barbifrons*, and I think it is still open to doubt, as in Fallén's description the only point distinctly opposed to this species is "*oculi tamen nudi*," and on the other hand "*macula in segmento 3 et 4 utrinque laterali flava*" applies strictly to no other species I am acquainted with. Loew, however, informs me that the species I have introduced in this paper as *Syrphus barbifrons* (No. 7) occurs on the continent without the basal spots, and states that he has seen no continental species with hairy eyes. It is also only natural that Zetterstedt should thoroughly recognise Fallén's species, and he admits that his *S. nitidula* is the female of *S. barbifrons*, and as *S. nitidula* is a true *Syrphus*, it would follow that *S. barbifrons* could not be a *Melanostoma*. This species proves the purely artificial nature of the genus *Melanostoma*, as *Syrphus barbifrons*, ♂ (though to my eyes a true *Syrphus*), so far troubled Schiner, the author of the genus *Melanostoma*, that he would not believe it to be the male of *S. nitidula*, and even separated the sexes generically; *M. quadrimaculatum* also differs from all the other

species of the genus in its hairy eyes and brown scutellum (approaching *Syrphus* in both these respects), but falls without hesitation into the genus from the peculiarity of the immaculate female.

12. *PLATYCHIRUS LATIMANUS*, Whlbg.—In my remarks on the British species of *Platychirus* in this Magazine (November, 1870), I said that any further addition to our indigenous species was hardly to be expected. I have, however, another to add, which I suppose must be Wahlberg's *Pl. latimanus*, of which I have seen a series captured by Dr. Buchanan White at Dunkeld, a male from Scotland, in my own collection, and a male bred by Mr. T. N. Hoey (who has kindly given me the specimen) from a pupa swept up from heather in Tilgate Forest. The species superficially resembles *P. albimanus*, but is smaller and broader in front, in shape being similar to *Melanostoma ambiguum*, ♂, but the peculiar front tarsi of the male at once distinguish it. In the specimens I have seen, the male has the frons broad and inflated, bearing a conspicuous depressed lunule above the antennæ, the inflation extends from the frons to more than half way down the sides of the epistoma, and the frons and all the inflated part are clothed with moderately long, rather abundant black hairs; the back of the head is rather inflated; the antennæ are rather short, blackish-brown. The thorax is shining æneous-black, faintly punctate; the abdomen dull black, with three pairs of hoary or whitish spots; the basal pair near the middle of the second segment, has the inner side of each spot rounded, and the outer side touching the edge of abdomen; the second pair of spots are nearly similar, but rather narrower, and are quite clear of the fore margin, but reach the edge; the pair on the fourth segment are rather nearer the fore-margin, and about the basal corners of the fifth segment are traces of another pair of spots. The legs are blackish, the front pair with the knees brown, the femora with a tolerably abundant, slightly waved, black pubescence behind, long near the base; the tibiæ slightly curved, slightly larger towards the tip than at the base, but not dilated, bearing outside a rather long and wavy but not conspicuous fringe of black hairs, and inside being obscurely yellowish on the apical third; the tarsi with the two basal joints pale yellow, very considerably dilated, forming an oval disc. The first joint at its base is not at all broader than the tip of the tibia, but rapidly dilates, being at its broadest part (just before its end) more than three times as broad; it is about

one and a-half times as long as broad, and is five or six times as long as the very slightly narrower second joint; beneath these joints is a large blackish blotch running across diagonally near the base of the first joint, and about the tip of this joint are some dark spots; the other three joints are dull blackish and simple. The middle legs have the knees dull yellowish, the tibiæ slightly curved, and the two basal joints of the tarsi clear luteous, the pubescence behind the femora is much less than that on the front pair, and the tibiæ bear outside, about the middle, a slight fringe of longish hairs; the hind tibiæ are slightly bent before the tip, and the basal joint of the hind tarsi is considerably dilated and lengthened. The wings have a greyish tinge, the stigma is brownish.

The female is smaller and blacker, the abdominal spots being more indistinct, the frons extra broad, the abdomen more shining, the knees more distinctly yellowish, the front tarsi all brownish and simple, the basal joints of the hind tarsi large and long, but not at all conspicuously dilated.

I am thus exact in describing this species, as my insects differ from Wahlberg's and Zetterstedt's description, sufficiently to raise doubts as to their identity. Wahlberg, in his original description (Ofv. k. vet.-akad. Förh. i, 66), says "abdomine—" "maculis flavidis—geniculis anterioribus latius posticis anguste "testaceis; *metatarsis posticis parum incrassatis*—Mas, maculis "abdominis obtuse sub-trigonis; tibiis anticis simplicibus; *meta-* "tarsis anticis modice oblique dilatatis, latitudine duplo longi-" "oribus, cum articulo secundo quadrato, dilatato, albidis; femoribus "anterioribus lateri posteriori, posticis anteriori, longius ciliatis. "Femina—metatarsis fusco-testaceis—Mas, *pedes intermediarii arti-* "culis tarsorum 2 primis basi apiceque angustissime testaceis. "Femina, *pedes anteriores femoribus basi angustissime apice fere* "ad dimidium, tibiis basi ad dimidium et apice angustissime "testaceis." Zetterstedt further says "Mas—*pedes antici, tibiis* "albidis pone medium late nigricantibus, *tarsorum articulis 1mo* "oblique, 2doque sub-quadratis, dilatatis. Fem.—abdomen multo "latius quam in ♂, maculis sex transversis, elongatis, fascias "3 rectas interruptas, albo-flavidas constituentibus." Where I have italicized in these quotations, the descriptions differ considerably from my species, yet in opposition to this, I place the strong probability of the same species occurring in considerable numbers (as it does) in North Europe and Scotland.

13. *CHILOSIA OLIVACEA*, Zett.—Amongst some British *Syrphidæ* of Mr. F. Walker's, I found a male specimen which I am inclined to refer to this species, of which the following diagnosis gives the principal characters. ♂: *olivacea*, *oculis hirtis*; *epistomate hirta*, *descendente*; *antennis fusco-nigris*, *seta sub-nuda*; *scutello pilis validis nigris*; *abdomine oblongo*, *æneo*, *luteo hirta*; *pedibus nigris*, *tibiis anterioribus basi fulvis*; *alulis flavidis*; *alis infuscatis*. Long. $4\frac{1}{2}$ lin.

It resembles *pigra*, but is distinguished by its smaller, more defined epistomal knob, on the sides of which the erect hairs are paler; by the shorter and blacker pubescence of the thorax and scutellum; by the pale yellow alulæ, with luteous edges and fringes, which, in *pigra*, are reddish-brown with brownish fringes; by the luteous, instead of black, pubescence at the end of the third and fourth abdominal segments; and by the absence of any chestnut hue on the second joint of the antennæ.

From *melanopa*, according to Loew's description, it would differ by its larger size, less prominent front, and by the absence of any black hairs on the hinder half of the fourth abdominal segment, and on the genitalia. Zetterstedt describes the knees in his diagnosis as whitish, but in his description testaceous. This species has hitherto only been recorded from Scandinavia.

14. *CHRYSOCHLAMYS RUFICORNIS*.—Among some *Diptera* collected by the late Mr. Dossetor, and given to me by Mr. E. W. Janson, was a pair of this species, which has been found over most of Europe north of the Alps, and therefore might be expected to occur in England. It is very similar to *C. cuprea*, but is usually rather smaller and narrower, with redder antennæ, and more especially with a red or reddish arista; the dull fasciæ on the abdomen are broader, especially in the middle, and placed just *before* the hind margin of the segments, leaving the hind margin itself shining; the scutellum is more yellow-haired, and the tibiæ bear no short black setæ, as in *C. cuprea*.
15. *XYLOTA CONFINIS*, Zett.—This species is allied to the common *X. segnis*, L., but is usually smaller, the red portion of the abdomen is more yellowish, with more or less black about the junction of the second and third segments, and on the disc of the second segment, and it also bear traces of whitish reflections about the sides near the base of the abdomen, and on the sides of the

fourth segment. The hind femora in *confinis* have, on the under-side, only a slight cilia of short spines, while in *segnis* the spines are long and conspicuous, and in *segnis*, ♂, the hind trochanters bear a much longer spine. In *confinis*, the black on the tibiæ is more conspicuous, and occupies the end rather than the middle. I caught one male near Three Bridges in August, 1872.

16. *PARAGUS ALBIFRONS*, Fall.—Among Mr. F. Walker's *Diptera*, was a male of this little species, which he thinks was caught in the Isle of Wight. As it is found all over Europe, it is sure to occur on the coasts of England, and I therefore introduce it without hesitation. It is easily distinguished from all other species by the entirely yellow epistoma of the male (the female having a black middle line in all species), the yellow tip to the scutellum, and the interrupted arcs of whitish tomentum on the abdomen. The abdomen varies in often bearing some red spots, and the legs often bear dark rings on the hind tibiæ, &c.

With these additions and corrections, the number of British *Syrphidæ* will be 190, as I have here added 12 and withdrawn one; we are therefore rapidly approaching the 200 species, which I anticipated when my list was published in January, 1870.

The Mulberries, Denmark Hill, London, S.E. :
February, 1873.

ON THE LARVA OF *SPHINX CONVULVULI* AND ITS HABITS.

BY WILLIAM BUCKLER.

My warm thanks are due to Mr. H. Laver of Colchester, for the loan of a larva, and to Mr. James J. Walker of Sheerness, for the pupa of this grand species, during the past autumn. Previously, I had seen but the dead specimen of the larva, recorded at E. M. M., vol. v, p. 161; and it may be supposed how elated I was to have the opportunity of depicting a living example, and of noting its movements and behaviour.

The larva, which had been found in a field at Mersea, Essex, reached me on September 24th, 1872, and continued to feed until noon of the 28th, and on the evening of the 29th, it retired to earth; I had, therefore, the pleasure of watching it for five days.

From the time of its arrival it showed no aversion to strong daylight, nor any disposition to wander away from the food supplied to it, but remained attached to the *Convolvulus arvensis*, although exposed

openly each day for eight or nine hours on a table near a window, with the afternoon sun frequently shining on it during that time : in all those hours its position was but little changed, merely advanced farther along the stem by slow degrees, with perhaps a turn to the right or left in order to get at the leaves in their order on the stem ; so that three or four inches would represent adequately the extent of its day's progress ; another proof of its very lethargic demeanour at this stage, at least, of its growth is given by the fact, that each morning I found it almost invariably on the same part of the food plant, and in a similar posture as when placed in its cage the previous evening ; nor did it seem to be a nocturnal feeder, of which, I had fair presumptive evidence by finding usually in the morning only one pellet of frass : throughout the day it fed frequently, taking rest in the intervals, and its meals were deliberate, never made ravenously or hurriedly, nor did it consume much at a time ; the number of pellets ejected during the day-time averaged about five ; and they were large in proportion. With a view of testing if it had any inclination to hide or burrow, I placed the larva once during the day-time, and once also at night, on some fine mould, but it seemed unwilling to stay on the earth, and soon crawled up through the *Convolvulus* which had been placed over it, and took up its position as usual on the stem of the plant.

Such were the habits of this individual on its approach to maturity, and they perfectly coincide with the account given by Mr. J. Boswell Syme, of those which he once reared (see E. M. M., vii, p. 139) : the opinion therefore expressed at pp. 161-2 of vol. v, that this species may hide itself by day under the soil is proved to be erroneous, and my friend Mr. Hellins is very glad to be so clearly set right on this point. Why, however, the moth should in some seasons swarm in this country to such a prodigious extent as it does, and yet the large-sized open-feeding larva be so seldom found, seems strange ; Boisduval says, in France the larva "is sufficiently common," feeding especially on *Convolvulus arvensis* in fields of potatoes and kidney beans, sometimes also on *C. sepium*, and in gardens on *C. tricolor* and *Ipomœa coccinea* ; and, in a letter to Mr. G. C. Bignell, Mr. G. F. Mathew, R.N., mentions that in Madeira it is said to be common in gardens, feeding on all sorts of *Convolvulus*, on lettuce, and other garden plants.

Potato fields in soils which *Convolvulus arvensis* affects, would seem to be the most likely hunting grounds in England ; July ? August, and September, would be the proper months in which to look for it ; and, if any of the readers of this Magazine should be lucky

enough to find any variety of the larva, differing from that which I shall presently describe, I shall be most thankful for the loan of it, and will make the best return in my power. Boisduval, after making two grand varieties, the green and the brown, proceeds to enumerate no less than three sub-varieties under each of these heads, and then says, beside these six there are to be found yet others.

To complete my history of the individual I had the pleasure of watching, I may say that it increased slightly, though perceptibly in length and bulk, till on the fourth day it ceased to eat, became extremely restless and active, and on being supplied with soil, entered it for pupation on the evening of the fifth; unfortunately, however, it died without completing the change, the earth proving too dry and friable, I found it had not been able to make a chamber for itself, after having gone down to a depth of two inches.

The pupa, which as mentioned by Mr. Walker at p. 162 of *this* vol., had been found in a *potato* field, in the Isle of Sheppy, reached me on December 11th, in lively condition, and, I am glad to say, it bore the journey hither and back, as well as the ordeal of sitting for its portrait, without any detriment.

The larva, when full-grown, measured exactly four inches, and in diameter five-eighths of an inch: it was cylindrical, though tapering gradually from the fifth segment to the head, which was decidedly the smallest segment, and flattened in front; the thirteenth also tapered a little at the end; the twelfth bore a smoothish dorsal pointed horn, arching backwards over the anal flap; the segmental divisions were deeply defined, as were also the intermediate wrinkles, which subdivided each segment of the body above into eight distinct rings, the first ring wider than the others, but none of them extending beyond the spiracles; the ventral legs full and stout; the anal pair large and of a squarish form; the texture of the skin was smooth, but for the most part without gloss.

The colour of the head was bright ochreous, and shining, the sutures finely outlined with black, and with two black stripes on each lobe down the side of the face; the general ground colour of the back, belly, and part of the side, was a deep blackish-brown; the sub-dorsal bright ochreous stripe was quite perfect on the thoracic segments, but, beyond them, showed only as a squarish spot on the first ring of each segment until the twelfth, where it faintly continued to the base of the caudal horn; however, its entire course was indicated plainly enough by a double row of deep brownish-ochreous longitudinal little streaks showing on the darker ground; similar streaks of brownish-ochreous covered the rest of the back, but with a regular order and design: there were none on the first of the eight sub-divisions of each segment, but on the other seven there was a double series converging forwards to a point near the second ring, other rows forming a broad bordering to the inconspicuous narrow black dorsal line—this line, indeed, would not be very noticeable, were it not better defined on the first ring of each segment; but it was there

well relieved between two larger and paler double ochreous streaks often confluent ; the side on each segment between the sub-dorsal and spiracular regions was divided into two triangular portions, the upper having its base on the front of the segment, and its apex pointing backwards on the sub-dorsal stripe, and being altogether of the dark ground, the lower triangle having its base on the hinder part of the segment, and its apex pointing forwards on the spiracular region, and being covered with regular transverse lines of whitish-grey dots on a brownish-grey ground ; the black oval spiracles were deeply sunk each within a large rounded shining spot of blackish ; the broad, whitish, inflated, sub-spiracular stripe was tolerably regular along the thoracic segments, but from the fifth segment it was festooned along in a puckered and tortuous course to the anal flap, followed beneath on most segments by a group of blotches and dots of a similar whiteness ; the back of the second segment was glossy ; the anterior legs were black and shining, also the caudal horn,* the anal flap greyish-ochreous ; the ventral and posterior legs of the ground colour were ringed with dull orange-red near their extremities, which were tipped with dark brown hooks ; the belly had a fine ventral line rather darker than the ground, which was thickly freckled over with a paler tint of the same.

The pupa measured $2\frac{1}{16}$ inches in length, and five-eighths of an inch in diameter ; its stout proboscis projected a quarter of an inch out from the body, bent downwards at a slight angle for little more than half-an-inch, and then curved round upwards for half the distance towards the underside of the thorax, with which it was in contact near its blunt, rounded extremity : the various parts of the imago within were all remarkably well shown, yet gently rounded off at the prominences, the wing-covers long in proportion, the anal spike short, blunt, and roughish, the proboscis delicately corrugated or ringed ; each segment of the abdomen had on the back a narrow transverse band of roughness at its beginning, the rest of the surface smooth and shining ; the colour was a light rich mahogany-brown, darker on the head, thorax, and proboscis, and on the last two segments ; the legs, antennæ, and wing-covers being the palest portions.

Emsworth : *April*, 1873.

Note on Xylotrupes dichotomus, L.—The larva of this insect has been a familiar object to me for some time in Japan : it generally occurs in the friable portions of rubbish-heaps and garden refuse, or in light soils, where there is an abundant growth of rank vegetation. The last larva I remember seeing was in a manure heap at Osaka, where it was snugly lodged under a broken tile. I once had a pupa from a similar situation, in which the horn of the male was well developed. The species is called “Kabuta-mushi” by the Japanese, and its larvæ are known to agriculturists, occurring, as I describe, in the earth, after the manner of those of our *Melolontha vulgaris*.

Phileurus chinensis I suspect is of a similar habit in its earlier stages, as I have always found the imago near heaps of refuse under planks or tiles ; but this species appears late in September, while the larger one is abundant by the middle of July.—GEORGE LEWIS, Acton Lodge, Beckenham : *March 21st*, 1873.

* The horn varies in colour ; Boisduval says, “it is either fawn above and black beneath, or ferruginous, or of a rusty-red.”—W. B.

Note on Trachyphloeus alternans.—I observe that Mr. J. J. Walker has recorded (p. 217 of the present vol.) the allied *T. spinimanus* and *squamulatus* as occurring at the roots of *Helianthemum vulgare* in chalky places; and I may remark that I have found *T. alternans* not uncommonly near here on the same yellow cistus, when in blossom, growing on banks by the road-side under chalk hills.—W. TYLDEN, Stanford, Hythe: April, 1873.

Note on Otiorhynchus monticola, Germ.—As the nomenclature of our *Otiorhynchi* seems again to be coming under discussion, it may be worth while to inform readers of the Magazine that we have not *Otiorhynchus monticola* as an inhabitant of Britain, all our Scotch specimens so named being *O. blandus*, Sch. It is to this species that Gyllenhal's description of *O. lævigatus* is to be referred (*teste* Thomson); and, on tracing back the question, I find our mistake has arisen from Germar having given *lævigatus*, Gyll., as a synonym of *monticola*, when describing that species. Walton identified his specimens of our species as the *lævigatus* of Gyllenhal, by specimens sent from the Swede himself, and pretty clearly adopted Germar's statement of the identity of *lævigatus*, Gyll., with *monticola*. Stierlin, too, has perpetuated the error, by having failed to distinguish the two insects, and at the same time giving them as distinct. In his monograph, he reproduces the description of *blandus*, stating that it is a species unknown to him, while at the same time, from the localities he gives for *monticola*, and a remark he makes as to Swedish examples he supposed to belong to that species, it is clear he had the two species (or races) before him. The characters distinguishing the two are briefly but lucidly given by Thomson; and I find our Scotch specimens differ from (Pyrenean) *monticola*, just in the same manner as Thomson says Swedish individuals differ therefrom.—D. SHARP, Eccles, Thornhill, Dumfries: April, 1873.

On the supposed new species of European Butterfly.—There can be no doubt that the *Lycæna Arthurus*, Melvill, described at p. 263 of this Magazine, is an aberration of *Lycæna Arion*, L.; such aberrations are indeed not so very scarce on the Continent. I have in my own collection four such specimens, all differing, it is true, a little from each other, but all almost destitute of black spots on the upper-side; in one specimen, even the black marginal spots are absent. The disappearance of the spots, especially on the under-side, occurs in all the *Lycanidæ*; and also the occasional appearance of black spots in species that are usually destitute of them. Thus, in the variety *Miegii* of *P. virgaureæ*, a number of large black spots appear on the upper-side: this also occurs in *P. Hippothoë*, L. (*chryseis*, Brk.), and in the *Lycæna orbitulus* from the mountains of the North of Persia.

It is my firm conviction that, within the true limits of Europe (certainly not in Central Europe), no new species of *Rhopalocera* remains to be discovered.—O. STAUDINGER, Dresden: April 4th, 1873.

Vanessa Antiopa hibernated at Folkestone.—A hibernated specimen of *V. Antiopa* was taken by my friend Mr. Arthur Gore in a nursery garden at Folkestone, on the 2nd April. Mr. Gore has kindly placed the specimen in my cabinet.—C. A. BRIGGS, 55, Lincoln's Inn Fields: April, 1873.

Natural History of Polia chi.—On September 14th, 1869, Mr. Longstaff, then at Forres, kindly sent me a few eggs laid by a female of this species; these began to hatch on April 11th, 1870, and continued at the rate of about one or two per diem until the 22nd. The larvæ, when young, fed chiefly on *Rumex crispus*, and occasionally on some other low plants, they at that time were not particular in their diet, for they seemed to welcome any change given them; but after two or three moults they began to show a decided preference for shallow and osier, and on this

food, towards the last, they were entirely kept, until they became mature one after the other, from May 20th to June 5th; the perfect insects appeared from August 10th to 21st.

The egg of *chi* is semi-spherical in form, or rather elliptical at top and flattened beneath at its greatest diameter; deeply ribbed and reticulated; when first laid it is yellowish, and in a few days turns greyish-brown, and, about a week before hatching, a broad zone of flesh colour appears below, while the upper part is a rich crimson-brown; at this time, in respect of colour, variations occur; some of the eggs have a narrow zone of blackish at a distance of two-thirds from the base, while the top is irregularly blotched with this colour.

The young larvæ, when first hatched, were pale olive-greenish, the large head pale brownish with distinct black dots and hairs; but they became in a couple of days rather bluish-green. By April 23rd, the most forward had become half-an-inch in length, very slender, and of a full, deep green colour, with the lines and also the dots paler green: by May 15th, the biggest had grown one inch in length, still slender in proportion, and rather less deep in colour, which, by the 19th, had changed to a yellow-green, and then the fine lines were whitish: by the 27th, the larvæ were in their last coats, and presented but little variation in details; their attitudes were graceful amongst the twigs of willow and alder, as they bent and elongated themselves when feeding near the extremities of the leaves.

The full-grown larva is one and five-eighths of an inch in length, very slender in proportion, cylindrical, though tapering a little at either end, the head rounded, and the antennal papillæ well developed, the segmental divisions very delicately defined, as well as the intermediate wrinkles, so that the skin appears very smooth and soft. The colour on the head and back is a delicate bluish-green, quite opaque on the back, the dorsal line very thin, a mere pale thread and edged with darker green than the ground colour; the sub-dorsal line is whitish, better defined, and also edged with darker, indeed, this line on the thoracic segments is white; beneath it, as far as the spiracles, the colour is a transparent yellowish, or else a full green, so clear as to show the branchial vessels through it, this colour deepens gradually below till it terminates in a fine blackish-green line, along the lower edge of which are the white spiracles outlined with black; a brilliant pure white stripe follows, very broad along the middle segments, and a little attenuated at each end, often extending along the side of the head towards the mouth, and ending behind at the extremity of the posterior leg; all the legs and belly are rather paler and more yellowish-green than the back; after the thoracic segments the tubercular dots are ranged in threes on either side of the dorsal line, they are paler than the ground, and sometimes ringed with a little darker colour.

The variations seem to be in the depth of the general ground colour, more or less blueness of the green, and the presence or absence of a small blackish oval ring with whitish centre, or false spiracle on the side of the third and fourth segments.

When full-fed, the larva makes a decided cocoon under the surface of the soil, of bits of earth, somewhat toughly spun together; the pupa is nearly six-eighths of an inch long, smooth and regular in outline, tapering gently to each end, the last segment of the abdomen terminating rather bluntly, and furnished with a knob, from which is emitted a pair of *very fine* (*quite bristle-like*) hooked spines; the colour of the pupa is reddish-brown, and the surface glossy.—WM. BUCKLER, Emsworth: *March, 1873.*

Note on the capture of Pentatoma juniperina.—On the 26th instant, a fine, clear, and warm day, I made an excursion with my wife to Caterham Valley, for the purpose of grubbing for this insect under the bushes growing within about 300 yards of the Junction Station. For an hour and a half I worked hard and assiduously, but, although the bushes bore fruit, my exertions were barren. Suddenly, something moved on a branch of the bush at which I was at work. It was the veritable creature; and, immediately after, a second put in an appearance. I then folded up my traps and took to searching the junipers. My wife, who had gone away and sat down beneath a bush to eat her lunch, now joined me. I showed her what to look for and gave her a bottle, and it became now, so to speak, a domestic hunt (without a candle). When we left off to return to the train, I found that I had taken seven specimens, while she had taken seventeen. I feel convinced that the Order comprising *Pentatoma* affords a fine scope for study by woman, as the above experience proves her knowingness in these matters.—JOHN SCOTT, 37, Manor Park, Lee, S.E. : 29th March, 1873.

Obituary.

Thomas Parry.—British Entomologists (in the west country especially) will regret to hear of the death of this gentleman on the 4th ult., at Merthyr, S. Wales, in the 81st year of his age. He had been engaged for a great number of years in entomological pursuits, and, in addition to a large general collection of British Insects, had acquired a considerable knowledge of their habits and peculiarities.

ENTOMOLOGICAL SOCIETY OF LONDON, 7th March, 1873.—H. T. STAINTON, Esq., F.R.S., Vice-President, in the Chair.

E. C. Lefroy, Esq., was elected a Member.

Mr. Champion exhibited *Tribolium confusum* and *Ptinus testaceus*, recorded as British by Dr. Sharp in the last No. of this Magazine.

Mr. Verrall exhibited *Laphria flava* from Aberdeen, and rare or new species of British *Syrphidæ*.

Mr. F. Smith exhibited a species of bug allied to *Pentatoma*, sent by Mr. Rothney from Calcutta, where it is found on the bark of trees, which it so greatly resembles in colour as only to be detected when moving. Mr. Meldola suggested that this mimicry might allow it to capture its prey with greater facility. Mr. Bates thought, on the other hand, it might protect it from lizards. A discussion ensued as to whether the division of *Hemiptera* to which the insect belongs is carnivorous or phytophagous.

Major Parry communicated a supplemental paper on Lucanoid *Coleoptera*.

Mr. F. Bates sent descriptions of new genera and species of *Tenebrionidæ* from Australia, New Caledonia, &c.

Mr. Müller read a communication from Mr. Bassett, of Waterbury, Connecticut relative to the sexes of *Cynips*. After detailing observations made, Mr. Bassett considered it settled that most American species are double-brooded, and that one generation consists of females only, and is perhaps structurally different from the other generation, and that all apparently unisexual forms are only dimorphic conditions. Mr. Smith repeated the account he had previously given of the manner in which, some years ago, he introduced the now abundant *C. Kollari* in the vicinity of London from Devonshire galls; all the insects were, of course, females.

THE

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H. G. KNAGGS, M.D., F.L.S. E. C. RYE, F.Z.S.

R. McLACHLAN, F.L.S. H. T. STANTON, F.R.S.

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"Entomology is a science, not a pastime."

WESTWOOD.

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INDEX.

	PAGE		PAGE
GENERAL INDEX	i.	LIST OF CONTRIBUTORS	xvii.
ENTOMOLOGICAL SOCIETY	x.	GENERA AND SPECIES NEW TO SCIENCE ...	xix.
SPECIAL INDEX—		" " " " " BRITAIN ...	xxi.
Coleoptera	xii.	LARVÆ OF BRITISH SPECIES DESCRIBED ...	xxii.
Diptera.....	xiv.	REVIEWS	xxiii.
Hemiptera-Heteroptera	xiv.	OBITUARY	xxiii.
" -Homoptera	xiv.	WOOD-CUTS	xxiii.
Hymenoptera	xiv.	ERRATA.....	xxiii.
Lepidoptera	xv.		
Neuroptera	xvii.		

INDEX TO GENERAL SUBJECTS.

	PAGE
Abundance of <i>Halesus auricollis</i> , Pict., in Wharfedale...	140
<i>Acanthaclisis americana</i> , Drury, Note concerning ..	210
Addition of two species to the British list of Tenthredinidæ ...	160
Additional notes on the egg, &c., of <i>Phytometra ænea</i> ..	139
Additions of three species to the British list of Tenthredinidæ ...	278
„ to the recorded captures of Lepidoptera in the Isle of Sheppy, A few	180
African Lepidoptera, Descriptions of new species of ...	59
<i>Agrion</i> , Mode of egg-laying of ...	163
<i>Andricus amenti</i> , Giraud, new to Britain, Oak-galls at Ballater, in June, including ...	85
„ <i>quadrilineatus</i> , Hartig, near Aberdeen, Occurrence of galls of ...	39
Anisotomidæ, Notes on, with description of three new species (two from Japan and one from Great Britain) ..	131
<i>Anoplognathus</i> , Description of a new species of the Coleopterous genus ...	75
Answer to the “Notes on a British bug” ...	119
Anthribidæ from New Zealand, Description of two new genera and three new species of ..	29
<i>Apanteles placidus</i> , Hal., Note on ...	211
<i>Apamea gemina</i> , Description of the larva of ..	275
<i>Aphanocephalus</i> , Wollaston, from Japan, Description of a second species of ...	167
<i>Argynnis Niobe</i> , Note on ...	253
<i>Asychna profugella</i> bred ..	90
Australian beetle near London, An ...	83
<i>Aventia flexula</i> , On the natural history and position of ...	42
<i>Baridius</i> (Coleoptera : Rhynchophora) from Singapore, which destroys Orchids, Description of a new species of ..	226
<i>Batrachedra præangusta</i> ...	118, 140
„ „, Note concerning the metamorphoses of ...	90
Bethylides, Description of a new European species of (Hymenoptera : Oxyura)	222
Black variety of <i>Dianthœcia conspersa</i> in Morayshire ...	20
Blind Coleoptera from Italy, Description of a new genus and species of ...	1
<i>Bostrichus Bulmerincqii</i> , Kolen., Note on ..	229
<i>Brachycentrus subnubilus</i> , Curtis, Description of the larva and case of ...	257

Brahmæa, in the collection of the British Museum, Description of a new species of	56
British bug, Notes on a	91, 165, 183
„ Hemiptera—an additional genus and species	63
„ „ -Homoptera, On certain	22, 80, 126, 189, 235, 270
„ Tortrices, Notes on	2, 34, 65, 95, 143, 243
Byrrhidae from Japan, On a genus of the	33
Bythoscopidae, Revision of the, &c.	22, 80, 126, 189, 235
Campbell, Death of Charles	183
Camponiscus Healæi, Newman, Note on... ..	84
Capture and habits of Loxops coccineus, Note on	92
„ in Northumberland of a Saw-fly new to Britain	69
„ of Halonota grandævana near Hartlepool in 1864	257
„ „ Lymexylon navale, Note on	83
„ „ Ophiodes lunaris at Lewes	70
Captures near Glanville's Wootton	118, 140
„ of Coleoptera, Stray	112
„ „ „ at Chatham, Recent	252
„ „ „ in North Kent	83
„ „ Lepidoptera at Grange-over-Sands, North Lancashire	39
„ „ „ in the Isle of Sheppy, A few Additions to the recorded	180
Carabideous genus, Maraga, Walker, Note on the	17
Caradrina Morpheus, Description of the larva of	254
Cathormiocerus from Great Britain, Description of a second species of	176
Cecidomyia salicis, Schranck, on Salix purpurea, L., Galls of	39
Ceraleptus lividus, Stein., Note on	277
Cerambyx heros entitled to a place in the British list? Is	111
Cetonia aurata, Unusually late appearance of	178
Charaxes from Africa, Description of a new species of... ..	13, 247
„ Jasius, Notes on the larva, &c., of	113
Cicindelidae, New species of	261
Cleonus nebulosus near London, Occurrence of... ..	19
Coccinellidae, Notes on Japanese	54
Cænoneura Dahlbomi, Thoms., a genus and species of Tenthredinidae new to Britain, Occurrence of	85
Coleoptera, Notes on certain British	137
„ Stray captures of	112
„ at Braemar, Notes on	158
„ „ Chatham, Recent captures of	252
„ „ Esher, Notes on	159
„ „ Holy Island and Deal	159
„ common to Europe and Japan, Notes on	172
„ from Italy, Description of a new genus and species of blind	1
„ „ Japan, Descriptions of new species of	224
„ „ „ On new	167, 200
„ in North Kent, Captures of	83
„ observed this season, Notes on a few species of	39

	iii. PAGE
Collecting at Forres	178
Colydiidæ from New Zealand, On two new genera of	9
Corixa, Notes on	60, 75
Crambus pinetellus, Natural history of	162
Cryptogamic Botany, Some entomological errors in	183
Curculionidæ, Notes on certain British	18
Cymindis lineata, Dej., Note on	83
Cynips ferruginea, Hartig, Occurrence of the galls of	85
Deltoid Lepidoptera of the genus Herminia, Natural history of the British species of	100
Description of a new African species of the genus Ischiodontus, Cand, (Coleoptera: Fam. Elateridæ)	223
" " " " European species of Bethylides (Hymenoptera: Oxyura)	222
" " " " Japanese species of Lycæna, and change of name of L. cassioides, Murray	126
" " " " genus and species of blind Coleoptera from Italy	1
" " " " " " " " Satyridian Butterflies... ..	204
" " " " species of Baridius (Coleoptera: Rhynchophora) from Singapore, which destroys Orchids... ..	226
" " " " " " Brahmæa, in the collection of the British Museum	56
" " " " " " Charaxes from Africa	13, 247
" " " " " " Dromius from England	73
" " " " " " Heliconia from Central America	224
" " " " " " Isonychus (Fam. Melolonthidæ) from Granada	203
" " " " " " Liosomus from Great Britain	136
" " " " " " Lucanidæ	110
" " " " " " Silis from Angola	157
" " " " " " the Coleopterous genus Anoplognathus... ..	75
" " " " second species of Aphanocephalus, Wollaston, from Japan	167
" " " " " " Cathormiocerus from Great Britain	176
" " " " nine new species of Lycenidæ from the West Coast of Africa	122
" " " " six new species of Epitola from the West Coast of Africa	149
" " " " the larva and case of Brachycentrus subnubilus, Curtis	257
" " " " " pupa of Hesperia Actæon	86
" " " " , &c., of Ephestia elutella	213
" " " " " Nonagria geminipuncta	230
" " " " " Rhodophæa marmorea	214
" " " " of Apamea gemina	275
" " " " " Caradrina Morpheus	254
" " " " " Ephyra pendularia	71
" " " " " Limacodes asellus	70
" " " " " Miana literosa	88
" " " " " Nonagria neurica	275
" " " " " Phycis (?) Davisellus	89
" " " " three new continental and one British species of Liburnia	104
" " " " two new genera and three new species of Anthribidæ from New Zealand	29

	PAGE
Description of two new West African butterflies from the collection of Henley G. Smith	274
Descriptions of a new genus and two new species of European <i>Oxyura</i>	207
" " four new African Butterflies	205
" " new species of African Diurnal Lepidoptera	151
" " " " " Lepidoptera	59
" " " " " Coleoptera from Japan	224
" " " " " exotic Rhopalocera	107
" " three new species of Rhopalocera from Angola	57
" " " " " Scarabæidæ from Australia and Japan	175
" " " " " Water-beetles from Central America	53
" " two species of Tenthredinidæ, new to science, from Scotland	220
<i>Dianthœcia conspersa</i> in Morayshire, Black variety of	20
Diurnal Lepidoptera, Descriptions of new species of	151
" " at Galena, Illinois 1871-73, Occurrence of	248
<i>Drilus</i> , Note on habits of ♀	68
<i>Dromius</i> from England, Description of a new species of	73
" <i>quadrinaculatus</i> , Interesting variety of	251
Egg, &c., of <i>Phytometra sœnea</i> , Additional notes on the	139
" -laying of <i>Agrion</i> , Mode of	163
"Endomycici recitati; a Catalogue of the Coleopterous group <i>Endomycici</i> , with descriptions of new species and notes;" by H. S. Gorham, Vicar of Shipley: Review	141
Entomological Societies of London, The local	185
" Society " " Proceedings of the .. 21, 71, 183, 234, 259,	279
" " " Haggerston	216
" " " Newcastle-on-Tyne	234
" " " Rochester	259
Entomology of our Novel Writers, The	93
Ephemeridæ from New Zealand, <i>Oniscigaster Wakefieldi</i> , A new genus and species of	108
<i>Ephestia elutella</i> , Description of the larva, &c., of	213
<i>Ephyra pendularia</i> , Description of the larva of	71
<i>Epitola</i> from the West Coast of Africa, Description of a new species of	149
Erroneous food-plant assigned to a larva	44
Errors in Cryptogamic Botany, Some Entomological	183
<i>Eubolia lincolata</i> , Notes on the larva of	255
<i>Eupithecia dodoneata</i> two years in the pupa state	277
" <i>expallidata</i> and <i>succenturiata</i> , Bred ..	118
Fedtschenko, Death of Alexis	141
Few words on <i>Vanessa Antiopa</i> , A	40
"Fifth Annual Report of the Noxious, Beneficial, and other Insects of the State of Missouri; by C. V. Riley, State Entomologist:" Review	94
Four species of <i>Nematus</i> new to Britain	211
Frauenfeld, Death of George Ritter von	166
Galls of <i>Andricus quadrilineatus</i> , Hartig, near Aberdeen, Occurrence of	39
" <i>Cecidomyia salicis</i> , Schranck, on <i>Salix purpurea</i> , L.	39
" <i>Cynips ferruginea</i> , Hartig, Occurrence of the ..	85
" <i>Spathegaster vesicatrix</i> , Schlechtendal, at Banchory, Occurrence of	85

	V. PAGE
Genus of the Byrrhidæ from Japan, On a	33
Gonepteryx rhamni at fault, Perception of	20
Guérin-Ménéville, Death of F. E.	233
Habits, &c., of the British species of Sesia, Hints as to the	160
Halesus auricollis, Pict., in Wharfedale, Abundance of	140
Halonota grandævana near Hartlepool in 1864, Capture of	257
Harpalus luteicornis, Dufts., Note on	229
„ new to Britain, A species of	68
Heliconia from Central America, Description of a new species of	224
Heliothis dipsacea at Sherwood Forest	162
Hemiptera, British; an additional genus and species	63
„ enumerated by Herr Thomson in the Fourth Fasciculus of his Opuscula Entomologica, Remarks on some of the	187
„ -Homoptera, On certain British	22, 80, 126, 189, 235, 270
Herminia, Natural History of the British species of Deltoid Lepidoptera of the genus	100
Hesperia Actæon, Description of the larva and pupa of	86
Heteromera, Notes on, and descriptions of new genera and species	14, 45
Hints as to the habits, &c., of the British species of Sesia	160
Idiocerus H-album, Fieb., Note on	92
Interesting variety of Dromius quadrimaculatus	251
Is Cerambyx heros entitled to a place in the British list?	111
Ischiodontus, Cand., Description of a new African species of the genus, (Coleoptera: Fam. Elateridæ)	223
Isonychus (Fam. Melolonthidæ) from Granada, Description of a new species of	203
Japanese Coccinellidæ, Notes on	54
Kaup, Death of J. J.	166
Larva and case of Brachycentrus subnubilus, Curtis, Description of the	257
„ „ pupa of Hesperia Actæon, Description of the	86
„ „ &c., of Charaxes Jasius, Notes on the	113
„ „ „ Ephestia elutella, Description of the	213
„ „ „ Nonagria geminipuncta, Description of the	230
„ „ „ Rhodophæa marmorea, „ „ „	214
„ of Apamea gemina	275
„ „ Caradrina Morpheus, Description of the	254
„ „ Ephyra pendularia, „ „ „	71
„ „ Eubolia lineolata, Notes on the	255
„ „ Limacodes asellus, Description of the	70
„ „ Miana literosa, „ „ „	88
„ „ Nematus ribesii, Note on the	21
„ „ Nonagria neurica	275
„ „ Phycis (?) Davisellus, Description of the	89
„ „ Polia nigrocincta, Note on the	89
„ „ Zygæna meliloti, „ „ „	116
Late appearance of Cetonia aurata, Unusually	178
Lepidoptera at Grange-over-Sands, North Lancashire, Captures of	39
„ from South Wales, Notes on	276
„ in North Wales	179

Lepidoptera in the Isle of Sheppy, A few additions to the recorded cap- tures of	180
„ of Ireland, The	153
„ „ „ (Notodonta bicolora)	180
“Lepidoptera, Rhopaloceres and Heteroceres, indigenous and exotic;” by Herman Strecker: Review	233
Lepidopterous Fauna of St. Vincente, with description of a new species of Gelechia, Note on the	121
“Les Papillons Diurnes de Belgique; Manuel du Jeune Lépidopterologiste,” Par Louis Quaedvlieg: Review	44
Leucania albipuncta at Folkstone... ..	118
Liburnia, Description of three new continental and one British species of ...	104
Limacodes asellus, Description of the larva of	70
Linnean Society, Proceedings of the	278
Liosomus from Great Britain, Description of a new species of	136
Lithosia griseola and stramineola... ..	117
„ quadra, Natural history of	217
„ stramineola and griseola proved to be only varieties of one species ...	69
Local Entomological Societies in London, The	185
Loxops coccineus, Meyer	92
Lucanidæ, Description of a new species of	110
Lycæna, Description of a new Japanese species of, and change of name of L. cassioides, Murray	126
„ Alsus, Supplementary notes on the natural history of	43
Lycænidæ from the West Coast of Africa, Description of nine new species of	122
Lymexylon navale, Note on capture of	83
Magdalinus carbonarius in Northumberland	83
Megalomus hirtus near Aberdeen, Occurrence of	90
Metamorphoses of Batrachedra præangusta, Note concerning the	90
Miana literosa, Description of the larva of	88
Mimæseoptilus aridus, Natural history of	182
Mode of egg-laying of Agrion	163
“Monograph of the Collembola and Thysanura;” by Sir John Lubbock, Bart., M.P.: Review	120
Natural history and position of Aventura flexula, On the	42
„ „ of Crambus pinetellus	162
„ „ „ Lithosia quadra	217
„ „ „ Lycæna Alsus, Supplementary notes on the	43
„ „ „ Mimæseoptilus aridus	182
„ „ „ the British species of Deltoid Lepidoptera of the genus Herminia	100
Nematus new to Britain, Four species of	211
„ ribesii, Note on the larva of	21
Neuroptera at Weybridge... ..	91
New Coleoptera from Japan, On	167, 200
„ species of Charaxes from Africa, Description of a... ..	13, 247
„ „ „ Cicindelidæ	261
Noctua glareosa, Variety of	181
Nomenclature, Zoological	232
Nonagria geminipuncta, Description of the larva, &c., of	230
„ neurica, Description of the larva of	275

	vii.
	PAGE
Note concerning <i>Acanthaclisis americana</i> , Drury	210
" " the metamorphoses of <i>Batrachedra præangusta</i>	90
" on <i>Apanteles placidus</i> , Hal.	211
" " <i>Argynnis Niobe</i>	253
" " <i>Bostrichus Bulmerincqii</i> , Kolen.	229
" " <i>Camponiscus Healæi</i> , Newman	84
" " capture and habits of <i>Loxops coccineus</i>	92
" " " of <i>Lymexylon navale</i>	83
" " <i>Ceraleptus lividus</i> , Stein.	277
" " <i>Cymindis lineata</i> , Dej.	83
" " habits of ♀ <i>Drilus</i>	68
" " <i>Harpalus luteicornis</i> , Duft.	229
" " <i>Idiocerus H.-album</i> , Fieb.	92
" " <i>Lepidoptera</i> from South Wales	276
" " <i>Pamphila sylvanus</i>	230
" " preserving insects in collections... ..	166
" " <i>Pulex obtusiceps</i> , Ritsema	228
" " <i>Sesia apiformis</i>	181
" " <i>Thalpochares parva</i>	40
" " the Carabideous genus <i>Maraga</i> , Walker	17
" " " larva of <i>Nematus ribesii</i>	21
" " " " <i>Polia nigrocincta</i>	89
" " " " <i>Zygæna meliloti</i>	116
" " " <i>Lepidopterous Fauna of St. Vincent</i> , with description of a new species of <i>Gelechia</i>	121
" " " occurrence in the North of England of <i>Cixius contaminatus</i> , Germ., and <i>Issus coleoptratus</i> , Fab.... ..	211
" " " " near Manchester of <i>Hylurgus piniperda</i> , <i>Tomicus stenographus</i> and <i>T. nigrinus</i>	209
" " travelled pupæ	256
" " <i>Tychius hæmatocephalus</i>	157
Notes on a British bug	91, 165, 183
" " " " " , Answer to the	119
" " " few species of <i>Coleoptera</i> observed this season	39
" " <i>Anisotomidæ</i> , with description of three new species (two from Japan and one from Great Britain)... ..	131
" " British <i>Tortrices</i>	2, 34, 65, 95, 143, 243
" " certain British <i>Coleoptera</i>	137
" " " <i>Curculionidæ</i>	18
" " " species of the genus <i>Orthostira</i> , Fieb., with reference to Mr. Douglas's remarks	242
" " <i>Coleoptera</i> at Braemar	158
" " " " Esher	159
" " " common to Europe and Japan	172
" " <i>Corixa</i>	60, 75
" " <i>Heteromera</i> , and descriptions of new genera and species	14, 45
" " Japanese <i>Coccinellidæ</i>	54
" " some <i>Odonata</i> , &c., in the Collection of the Royal Dublin Society... ..	227
" " " <i>Tineina</i> observed in 1873	232

Notes on the development of <i>Volucella bombylans</i> , parasitical in the nests of Carder-bees; with observations on the development of the tubular head and appendages of its pupa	196
„ „ „ larva, &c., of <i>Charaxes Jasius</i>	113
„ „ „ „ of <i>Eubolia lineolata</i>	255
„ „ <i>Vanessa Antiopa</i> in Holland	20
(<i>Notodonta bicolora</i>), <i>Lepidoptera</i> of Ireland	180
„ „ in England	253
„ „ Ireland	212, 213, 230
Oakgalls at Ballater, in June, including <i>Andricus amenti</i> , Giraud, new to Britain	85
Occurrence in Britain of <i>Thalpochares paula</i> , Hübn.	19
„ „ the North of England of <i>Cixius contaminatus</i> , Germ., and <i>Issus coleoptratus</i> , Fab., Note on the	211
„ near Manchester of <i>Hylurgus piniperda</i> , <i>Tomicus stenographus</i> and <i>T. nigritus</i> , Note on the	209
„ of <i>Cleonus nebulosus</i> near London	19
„ „ <i>Cænoneura Dahlbomi</i> , Thoms., a genus and species of <i>Tenthredinidæ</i> new to Britain	85
„ „ Diurnal <i>Lepidoptera</i> at Galena, Illinois, 1871—73	248
„ „ galls of <i>Andricus quadrilineatus</i> , Hartig, near Aberdeen	39
„ „ „ „ <i>Spathegaster vesicatrix</i> , Schlechtendal, at Banchory	85
„ „ <i>Megalomus hirtus</i> near Aberdeen	90
„ „ <i>Pœcilosoma pulverata</i> , Ratz., a saw-fly new to Britain	69
„ „ the galls of <i>Cynips ferruginea</i> , Hartig	85
Odonata, &c., in the Collection of the Royal Dublin Society, Notes on some	227
“On the Ancestry of Insects, ‘printed in advance’ from chap. xiii of ‘Our Common Insects;’ by A. S. Packard, Jun.: Review	93
“ „ „ Origin and Metamorphoses of Insects;” by Sir John Lubbock, Bart., M.P., F.R.S.: Review	215
<i>Oniscigaster Wakefieldi</i> , a new genus and species of <i>Ephemeridæ</i> from New Zealand	108
<i>Ophiodes lunaris</i> at Lewes, Capture of	70
<i>Orthostira</i> , Fieb., Notes on certain species of the genus, with reference to Mr. Douglas’s remarks	242
<i>Oxyura</i> , Descriptions of a new genus and two new species of European	207
<i>Pachnobia alpina</i> , bred	88
<i>Pamphila sylvanus</i> , Note on	230
<i>Pediacus</i> near London	19
Perception of <i>Gonepteryx rhamni</i> at fault	20
<i>Phycis</i> (?) <i>Davisellus</i> , Description of the larva of	89
<i>Phytometra ænea</i> , Additional notes on the egg, &c., of	139
<i>Pœcilosoma pulverata</i> , Ratz., a saw-fly new to Britain, Occurrence of	69
<i>Polia nigrocincta</i> , Note on the larva of	89
Preserving Insects in Collections, Note on	166
<i>Pterostichus nigrita</i> , Scotch form of	252
<i>Pulex obtusiceps</i> , Ritsema, Note on	228
Recent captures of <i>Coleoptera</i> at Chatham	252
Rejoinder to the ‘Notes on a British Bug’	183
Remarks on some of the Hemiptera enumerated by Herr Thomson in the 4th Fasciculus of his <i>Opuscula Entomologica</i>	187

"Researches in Zoology, illustrative of the structure, habits and economy of animals;" by John Blackwall, F.L.S. Second Edition. Review...	142
Revision of the Bythoscopidæ, &c. 22, 80, 126, 189,	235
Rhodophæa marmorea, Description of the larva, &c., of	214
Rhopalocera, Descriptions of new species of exotic	107
" from Angola, Descriptions of three new species of	57
Saw-fly new to Britain, Capture in Northumberland of a	69
Scarabæidæ from Australia and Japan, Descriptions of three new species of...	175
Schiner, Death of J. Rudolf	166
Scotch form of Pterostichus nigrita	252
Second note on the Trichoptera of Zetterstedt's 'Insecta Lapponica,' according to Wallengren's determinations	163
Sericoris irriguana and Daleana	276
Sesia, Hints as to the habits, &c., of the British species of	160
" apiformis, Notes on	181
Silis from Angola, Description of a new species of	157
Some entomological errors in Cryptogamic Botany	183
Spathegaster vesicatrix, Schlechtendal, at Banchory, Occurrence of galls of...	85
Species of Harpalus new to Britain, A	68
Sphinx convolvuli at Huddersfield	139
Stray captures of Coleoptera	112
Supplementary notes on the Natural History of Lycæna Alsus	43
Teniocampa gothica, var. gothicina, in Yorkshire	277
Tenthredinidæ, Addition of two species to the British list of	160
" Additions of three species to the British list of	278
" new to Britain, Three species of	113
" " science, from Scotland, Descriptions of two species of...	220
Thalpochares parva, Note on	40
" paula, Hübn., Occurrence in Britain of	19
"The object and method of Zoological Nomenclature;" by D. Sharp: Review	215
Three species of Tenthredinidæ new to Britain... ..	113
Tineina observed in 1873, Notes on some	232
Tortrices, Notes on British 2, 34, 65, 95, 143,	243
Travelled pupæ, Note on	256
Trichoptera of Zetterstedt's 'Insecta Lapponica,' according to Wallengren's determinations, Second note on the	163
Two new genera of Colydiidæ from New Zealand, On	9
Tychius hæmatocephalus, Note on	157
Unusually late appearance of Cetonia aurata	178
Vanessa Antiopa, A few words on	40
" " in Holland, Notes on	20
" " near Brighton	139
" " " London	139
Variety of Dianthæcia conspersa, in Morayshire, Black	20
" " Dromius quadrimaculatus, Interesting	251
" " Noctua glareaosa	181
Volucella bombylans, Notes on the development of, parasitical in the nests of Carder-bees; with observations on the development of the tubular head appendages of the pupa	196
Zoological Nomenclature	232
Zygæna meliloti, Note on the larva of	116

INDEX OF SUBJECTS NOTICED IN THE PROCEEDINGS OF THE ENTOMOLOGICAL SOCIETY OF LONDON.

	PAGE
Acclimation of certain species of insects in New Zealand, Proposed ..	184
<i>Acontia solaris</i> said to have been taken at Dover ...	183
<i>Agrotera nemoralis</i> from Lewes ...	72
Anniversary Meeting ...	234
Ant, the grain-storing, of Mentone ...	259
<i>Apatura</i> , On the synonymy of certain American species of ...	216, 235
<i>Biorrhiza aptera</i> on roots of Deodar ...	184
Blind Articulata in the Jurassian Alps ...	234
Bombycidae, A supposed aquatic species of ...	216, 260
<i>Brachycentrus subnubilus</i> , Larva and case of ...	184
Bramble-stems, Hymenoptera inhabiting ...	72
<i>Bruchus</i> , Species of, infesting <i>Gleditschia</i> ...	71, 72
Buprestidae from the Philippines, &c. ...	279
<i>Cassida vittata</i> from Chatham ...	260
Cetoniidae from the Philippines ...	259
<i>Chilo gigantellus</i> from Horning Fen ...	184
Chontales, Longicorn Coleoptera of ...	184
Clemens, an old Swiss entomologist ...	22
<i>Clostera curtula</i> and <i>C. reclusa</i> , Hybrid between... ..	184
Coffee plantations in Natal, Injury to, by a longicorn beetle ...	234, 260, 280
Coleoptera, Rare British ...	183
<i>Colias Nastes</i> from Turkestan ...	21
Colorado potato-beetle, Notes on the ...	259
Cossonidae, Revision of the ...	72
Cricket, Species of, kept for its song, in Turkey ...	260
<i>Deilephila euphorbiae</i> said to have been taken near Harwich ...	183
<i>Diaphonia</i> from Queensland, A new species of ...	259
Diurnal Lepidoptera, New species of ...	235
Ephemeridae, Eaton and Hagen's Notes on ...	22
<i>Galeodes</i> , New species of... ..	72
Galls on oak from Morocco ...	72
<i>Gleditschia</i> , Species of <i>Bruchus</i> infesting ...	71, 72
<i>Goliathus albosignatus</i> (Kirki) from the Limpopo ...	21
Hybrid between <i>Clostera curtula</i> and <i>C. reclusa</i> ...	184
Hymenoptera inhabiting bramble-stems from Albania ...	72
„ „, Part of Catalogue of British... ..	184
Japan, Phytophaga of ...	184
„ „, Pselaphidae and Scydmaenidae of ...	216
„ „, Staphylinidae of ...	22
„ „, Tenthredinidae and Ichneumonidae of ...	280
<i>Langia zeuzeroides</i> , Moore, from the Himalayas ...	21
Lepidoptera, Chinese ...	72
„ „, New species of Diurnal ...	235

Lepidoptera, Variations in neuration of Diurnal	...	...	...	72
„, Varieties of British	...	...	...	183
Locustidæ from Shanghai, A species of, kept by the Chinese in wicker-work cages	...	...	...	260
Locusts, Ravages of, in Greece	...	...	...	280
Longicorn Coleoptera of Chontales	...	...	...	184
Lucanidæ, New species of	..	...	...	280
Lycæna Phœbe from Australia	..	...	...	235
Lycænidæ from South Africa, New species of	...	...	..	260
„, New species of	...	...	...	260
Meetings, Reports of	...	21, 71, 72, 183, 184, 216, 234, 259, 260, 279, 280		
Morocco, Galls on oak from	...	...	...	72
Mynas Guerini and M. Geoffroyi, Note on	...	...	...	184
Myriopod from the Jurassian Alps, A blind	...	...	..	234
Myrmica lævinodis with characters of male, female, and worker combined in one individual	...	...	...	259
Natal, Injury to Coffee plantations in, by a longicorn beetle	...	234, 260, 280		
New Zealand, Proposed acclimation of certain species of insects in	...	...		184
Oligoneuria, Transformations of	...	...	...	72
Olivier, Types of Coleoptera described by	...	...	...	216
Oniscigaster Wakefieldi, Stages of...	...	...	...	260
Palustra Laboulbenei; a supposed aquatic species of Bombycidæ	...	216, 260		
Papilio Merope, Forms of	...	...	...	184
Parnassius Apollo, Distribution of, in respect to glaciers	...	...		21
Photographs of insects	...	...	...	216
Phytophaga of Japan	...	...	...	184
Pselaphidæ and Seydmænidæ of Japan...	...	...	...	216
Psen, Species of congregating	...	...	...	184
Psychidæ from Calcutta, Case of species of	...	...	...	72
Rhaphiglossa, Attitude of, when at rest	...	...	...	72
Satyrus Ziphia from Madeira	..	...	...	235
Sitophilus infesting wheat from Japan and Australia...	...	...		259
Sphinx pinastri said to have been taken near Harwich	...	...	...	183
Spitzbergen, Insects from	...	...	...	260
Staphylinidæ of Japan	...	...	...	22
Stylops, Habits of	...	...	...	280
Tenthredinidæ and Ichneumonidæ of Japan	...	...	...	280
‘Thesaurus Entomologicus Oxoniensis’	...	...	...	72
Trap-door spiders, Remarks on	...	...	...	259
Turkestan, Projected work on the natural history of	...	...		21
Varieties of British Lepidoptera	..	...	...	183
Wheat from Japan and Australia infested by Sitophilus	...	...		259
Xylocopa, Monograph of the genus	...	...	...	216

SPECIAL INDEX.

COLEOPTERA.

	PAGE		PAGE
<i>Aetocharis marina</i>	138	<i>Cicindela cathaica</i> (sp. n.), H. W. Bates	265
<i>Æthalides</i> (g. n.), F. Bates	50	<i>chontalensis</i> (sp. n.), „	264
<i>punctipennis</i> (sp. n.), F. B. ...	51	<i>delicata</i> (sp. n.), „	265
<i>Aëtrophorus imperialis</i> near Ilford ...	39	<i>granulipennis</i> (sp. n.), „	265
<i>Agabus sexualis</i> and Solieri, Synonymy of	138	<i>hilariola</i> (sp. n.), „	263
<i>Anisocalvia</i> (g. n.), Crotch	55	<i>igneicollis</i> (sp. n.), „	262
<i>Anisotoma anglica</i> , Rye	135	<i>immanis</i> (sp. n.), „	266
<i>circinipes</i> (sp. n.), Rye	132	<i>nebulosa</i> (sp. n.), „	263
<i>convexa</i>	132	<i>Wallacei</i> (sp. n.), „	264
<i>grandis</i>	135	<i>Cis punctulatus</i>	158
<i>lateritia</i>	133	<i>Cleonus nebulosus</i> near London	19
<i>macropus</i> (sp. n.), Rye	133	<i>Coccinellidæ</i> from Japan	54
<i>multipunctata</i> (sp. n.), Rye ...	131	<i>Cænopsis fissirostris</i> in Devon	112
<i>pallens</i>	135	<i>Coleoptera</i> common to Europe and Japan	172
<i>puncticollis</i>	136	, Notes on capture of 39, 83, 112, 118,	158, 169, 252
Russian spp. of	136	<i>Colon rufescens</i>	39
<i>Anoplognathus parvulus</i> (sp. n.), C. O. Waterhouse	75	<i>Colydiidæ</i> from New Zealand	9
<i>Antherophagus silaceus</i>	84	<i>Copelatus signatus</i> (sp. n.), Sharp ...	53
<i>Anthribidæ</i> from New Zealand	29	<i>Corylophidæ</i> from Japan	167
<i>Aphanocephalus Wollastoni</i> (sp. n.), Rye...	167	<i>Cryptamorphia fasciata</i> (sp. n.), Wollaston	169
<i>Apion sanguineum</i>	159	<i>Cryptophagus parallelus</i>	158
<i>Apsidæ</i> , Lac., characterized	15	<i>Curculienidæ</i> , Notes on British	18
<i>æneomicans</i> (sp. n.), F. Bates ...	16	<i>Cymindis lineata</i> , Dej.	83
<i>Belti</i> (sp. n.), F. Bates	16	<i>Dendrodipnis</i> (g. n.), Wollaston	33
<i>Boucardi</i> (sp. n.), F. Bates ...	17	<i>cœnosus</i> (sp. n.), Woll.	34
<i>chrysomelina</i> (sp. n.), F. Bates ...	15	<i>Delognatha brevicornis</i> (sp. n.), F. Bates...	48
<i>purpureomicans</i> (sp. n.), F. Bates	16	<i>Buckleyi</i> (sp. n.), „	49
<i>Atomaria badia</i>	159	<i>Lacordairii</i> , Lac., types	49
<i>Bagous</i> sp.? near frit	84	<i>puncticollis</i> (sp. n.), F. Bates	49
<i>Baridius aterrimus</i> (sp. n.), C. O. Waterhouse	226	<i>Diaperis Lewisi</i> (sp. n.), F. Bates ...	14
<i>Bembidium 14-striatum</i>	137	<i>sanguineipennis</i> (sp. n.), F. Bates	14
Blind Coleoptera from Italy	1	<i>Dineutes truncatus</i> (sp. n.), Sharp ...	54
<i>Böstrichus Bulmerineqii</i> , Kolen.	229	<i>Drilus</i> , Habits of ♀	68
<i>Bryoporus rugipennis</i> , var.	158	<i>Dromius oblitus</i>	74
<i>Byrrhidæ</i> from Japan, Genus of	33	<i>quadrimaculatus</i> , var.	251
<i>Calathus nubigena</i>	137	<i>vectensis</i> (sp. n.), Rye	73
<i>Cathormiocerus maritimus</i> (sp. n.), Rye...	176	<i>Drypta dentata</i> inland	253
<i>socius</i>	177	<i>Elatræ præustus</i> , Schödtte, Synonymy of..	138
<i>Catops colonoides</i> in Dorset	112	<i>Epitoxicum</i> (g. n.), F. Bates	46
<i>Cerambyx heros</i> , ? British	111	<i>haplandroides</i> (sp. n.), F. B... ..	46
<i>Cetonia aurata</i> in October... ..	178	<i>Erihrinus tremulæ</i> in Dorset	112
<i>Ceuthorhynchideus Chevrolati</i>	18	<i>Etnalis</i> (g. n.), Sharp	32
“ <i>Ceuthorhynchus crassidentatus</i> , Marshall”	18	<i>spinicollis</i> (sp. n.), Sharp... ..	32
<i>viduatus</i> near Ilford... ..	39	<i>Euryporus picipes</i> at Chatham	253
<i>Chiasognathus pubescens</i> (sp. n.), C. O. Waterhouse	110	<i>Gymnetron rostellum</i>	84, 112
		<i>Gyrophæna pulchella</i>	169
		<i>Harpalus luteicornis</i> not British	229
		<i>quadripunctatus</i>	68, 168

	PAGE
Heteromera, Notes on	14, 45
Holoparamerus, Table of species of ...	201
capitatus (sp. n.), Woll...	202
contractus (sp. n.), „ ...	203
ellipticus (sp. n.), „ ...	201
signatus (sp. n.), „ ...	202
Homalota elegantula	84, 112
fungicola and ignobilis, Sharp, Synonymy of	138
londinensis, Shp., Synonymy of	138
rufotestacea (?)... ..	39
sylvicola	112
testaceipes	253
Hylurgus piniperda	209
Ischiodontus Candezei (sp. n.), Ritsema ...	223
Isonychus maculatus (sp. n.), C. O. Water- house	203
Laccophilus apicalis (sp. n.), Sharp ...	53
Lawsonia (g. n.), Sharp	30
longicornis (sp. n.), Sharp ...	30
variabilis (sp. n.), Sharp ...	31
Leptinus testaceus in numbers at entrance of nest of Bombus	84
Leucohimatium breve (sp. n.), Wollaston	170
Liosomus oblongulus	84, 138, 253
troglodytes (sp. n.), Rye ...	136, 253
Lymexylon navale in Cheshire	83
Magdalinus carbonarius in Northumberland	83
duplicatus	158
Maraga, Walker	17
Megacephala excelsa (sp. n.), H. W. Bates	261
Megalophrys Waterhousii (sp. n.), F. Bates	47
Melasis buprestoides near Chatham ...	252
Meligethes morosus	138
symphyti on Agraphis nutans	39
Menthophilus tuberculatus (sp. n.), C. O. Waterhouse	176
Monotoma 4-foveolata in Sheppy... ..	84
Mycetæa and Symbiotes, Relations of ...	224
Nanophyes gracilis... ..	159
Odontocheila nicaraguensis (sp. n.), H. W. Bates	268
rufiscapis (sp. n.), „ ...	268
Salvini (sp. n.), „ ...	267
Olistherus	138
Onosterrhus punctulatus (sp. n.), F. Bates	51
Orchestes melanocephalus... ..	18
semirufus	18
Orthogonius	17
Oxychila gratiosa (sp. n.), H. W. Bates...	262
Oxypoda rupicola, Rye	158
Oxytelus clypeonitens	84
Pediacus dermestoides near London	19, 39

	xiii. PAGE
Peneta cervus (sp. n.), F. Bates	50
Phænocephalus (g. n.), Wollaston ...	167
castaneus (sp. n.), Woll...	168
Platytarsus setulosus	253
Podabrus alpinus, var.	158
Polpogenia Laglaizii (sp. n.), F. Bates ...	47
Pfonyssa nodicollis (sp. n.), H. W. Bates	268
Ptenidium turgidum	39, 252
Pterostichus nigrita, Mountain form of ...	252
Salpingus æratus in Devon	112
Saula japonica (sp. n.), Gorham	224
Scarabæidæ from Australia and Japan ...	175
Scopæus subcylindricus	138
Scydmanus Godarti at Loughton	39
præteritus, Rye	84
Silis apicalis (sp. n.), C. O. Waterh. ...	157
Silvanus similis	159
Stenus opacus near Ilford... ..	39
Stilbus	138
Stilicus fragilis in Dorset... ..	112
Symbiotes niponensis (sp. n.), Gorham ...	225
Tarphiomimetes (g. n.), Wollaston ...	9
Lawsoni (sp. n.), Woll...	11
viridipicta (sp. n.), Woll.	11
Tarphiomimus (g. n.), Wollaston	12
indentatus (sp. n.), Woll...	13
Temnoplectron læve (sp. n.), C. O. Waterh.	175
parvulum (sp. n.), „ ...	175
Tetracha fuliginosa (sp. n.), H. W. Bates	261
Thallestus rufopictus (sp. n.), Wollaston...	172
suffusus (sp. n.), „ ...	171
throscoides (sp. n.), „ ...	171
Therates Erinnyes, (sp. n.), H. W. Bates...	269
Throsceus carinifrons in Dorset	112
obtusus in profusion	84
near Ilford	39
Tomicus nigritus	209
stenographus	209
Toxicum Chevrolati, Montr.	52
picticollis (sp. n.), F. Bates ...	45
Trachyphlæus myrmecophilus corroborated as British	138
Trichonyx Mærkeli	112
Triphyllus Lewisianus (sp. n.), Wollaston	170
Trogophlæus foveolatus	84
Tropis dimidiata (Australian) in London...	83
Tychius hæmatocephalus	157
Typhlodes (g. n.), Sharp	1
italicus (sp. n.), Sharp... ..	2
Water-beetles from Central America ...	53

DIPTERA.

	PAGE
<i>Cecidomyia salicis</i> , Galls of ...	39
<i>Pulex obtusiceps</i> and <i>talpæ</i> ...	228
<i>Volucella bombylans</i> , Development of ...	196

HEMIPTERA-HETEROPTERA.

<i>Amblytylus affinis</i> ...	278
Bug, Notes on a British ...	91, 119, 165, 183
<i>Callicorixa</i> (subg. n.), F. B. White ...	62
<i>Ceraleptus lividus</i> , Note on ...	277
<i>Corixa</i> , Notes on the "strigil" in the ♂ of British species of, &c. ...	60, 75
<i>Cymatia</i> ...	63
<i>Emesa corsicensis</i> (sp. n.), Scott ...	271
<i>Emesodema Huttoni</i> (sp. n.), Scott ...	271
Hemiptera: Thomson, Opusc. Ent. ...	187, 242
<i>Loxops coccineus</i> ...	64, 92
<i>Macrocoleus sordidus</i> ...	91, 119, 165
<i>Macrocorixa</i> (subg. n.), F. B. White ...	62
<i>Oncotylus pilosus</i> ...	278
<i>tanacetii</i> ...	91, 119, 165
<i>Oreinocorixa</i> (subg. n.), F. B. White ...	63
<i>Orthostira biseriata</i> ...	189, 243
<i>cassidea</i> ...	187, 242
<i>cylindricornis</i> ...	188, 243
<i>nigrina</i> ...	188, 243
<i>parvula</i> ...	188, 243
<i>platychila</i> ...	187, 243
<i>recticosta</i> ...	189, 243
<i>Plagiotylus</i> (g. n.) <i>maculatus</i> (sp. n.), Scott ...	273
<i>Tinicephalus hortulanus</i> ...	91, 119, 165

HEMIPTERA-HOMOPTERA.

<i>Agallia brachyptera</i> ...	238
<i>puncticeps</i> ...	236
<i>venosa</i> ...	237
Bythoscopidæ, Revision of British ...	22, 80, 126, 189, 235
<i>Bythoscopus alni</i> ...	82
<i>fruticola</i> ...	126
<i>rufusculus</i> ...	241
<i>Cixius contaminatus</i> in Cheshire ...	211
<i>Idiocerus adustus</i> ...	24
<i>confusus</i> ...	81
<i>fulgidus</i> ...	80
<i>H.-album</i> ...	26, 92
<i>laminatus</i> ...	28
<i>litratus</i> ...	25
<i>populi</i> ...	28
<i>tremulæ</i> ...	27
<i>venustus</i> ...	239
<i>Issus coleoptratus</i> in the Midland counties ...	211

	PAGE
<i>Liburnia guaramanensis</i> (sp. n.), Scott ...	106
<i>Lethierryi</i> (sp. n.), " ...	105
<i>Marshalli</i> , (sp. n.), " ...	104
<i>perspicillata</i> ...	270
<i>scutellata</i> (sp. n.), Scott ...	107
<i>Macropsis lanio</i> ...	23
<i>microcephala</i> ...	22
<i>Pediopsis cereus</i> ...	130
<i>distinctus</i> (sp. n.), Scott ...	191
<i>fuscinervis</i> ...	192
<i>impurus</i> ...	190
<i>nanus</i> ...	235
<i>nassatus</i> ...	193
<i>scutellatus</i> ...	194
<i>tibialis</i> (sp. n.), Scott ...	195
<i>tiliæ</i> ...	128
<i>ulmi</i> (sp. n.), Scott ...	129
<i>virescens</i> ...	189

HYMENOPTERA.

<i>Aleria</i> (g. n.), <i>flavibarbis</i> (sp. n.), Marshall ...	208
<i>Andricus amenti</i> ...	85
<i>curvator</i> ...	39
<i>inflator</i> ...	85
<i>quadrilineatus</i> ...	39, 85
<i>ramuli</i> ...	39
<i>Apanteles placidus</i> ...	211
<i>Biorrhiza renum</i> ...	39
<i>Blennocampa pusilla</i> ...	113
<i>Camponiscus</i> "Heakei," Newm. (= <i>Tenthredo luridiventris</i> , Fall.) ...	84
<i>Cænoneura Dahlbomi</i> ...	85
<i>Cynips ferruginea</i> ...	85
<i>marginalis</i> ...	85
<i>Dolerus gibbosus</i> ...	278
<i>Dryinus corsicus</i> (sp. n.), Marshall ...	207
<i>Hoplocampa pectoralis</i> ...	278
<i>rutilicornis</i> ...	113
<i>Isobrachium maculipenne</i> (sp. n.), Marshall ...	222
<i>Leptocercus</i> , Hartig (= <i>Hemichroa</i> , Steph.) ...	84
<i>Nematus cinereæ</i> ...	278
<i>croceus</i> ...	211
<i>graminis</i> (sp. n.), Cameron ...	221
<i>Kirbyi</i> ...	278
<i>mollis</i> ...	212
<i>obductus</i> ...	211
<i>pallipes</i> ...	211
<i>quercûs</i> ...	160
<i>ribesii</i> , larva of ...	21
<i>viridis</i> ...	211
<i>Pæcilosoma obtusum</i> ...	278
<i>pulveratum</i> ...	69

	PAGE
<i>Spathogaster vesicatrix</i>	85
<i>Strongylogaster filicis</i>	69
<i>mixtus</i>	278
<i>Taxonus coxalis</i>	113
<i>glottianus</i> (sp. n.), Cameron	220
<i>sticticus</i>	113
<i>Tenthredo carinata</i>	69
<i>moniliata</i>	160

LEPIDOPTERA.

<i>Acraea Cydonia</i> (sp. n.), Ward	59
<i>Rabbaia</i> " "	152
<i>Rogersi</i> " Hewitson	57
<i>Sambava</i> " Ward	59
<i>Agrotis agathina</i>	178
<i>Anchylopera biarcuana</i>	96
<i>comptana</i>	96
<i>derasana</i>	96
<i>diminutana</i>	96
<i>inornatana</i>	95
<i>Lundana</i>	96
<i>Mitterbacheriana</i>	95
<i>myrtillana</i>	96
<i>obtusana</i>	96
<i>paludana</i>	96
<i>ramella</i>	95
<i>siculana</i>	96
<i>subarcuana</i>	95
<i>uncaua</i>	96
<i>unguicella</i>	96
<i>upupana</i>	95
<i>Anisotænia ulmana</i>	144
<i>Apamea gemina</i> , Larva of... ..	275
<i>Apatura Cleochares</i> (sp. n.), Hewits.	58
<i>Argynnis Aphrodite</i>	250
<i>Bellona</i>	250
<i>Cybele</i>	250
<i>Idalia</i>	250
<i>Myrina</i>	250
<i>Niobe</i>	253
<i>Argyrotoza Conwayana</i>	97
<i>Asthenia cognatana</i> (sp. n.), Barrett	244
<i>coniferana</i>	244
<i>cosmophorana</i>	245
<i>pygmæana</i>	245
<i>splendidulana</i>	245
<i>strobilella</i>	245
<i>Asychna profugella</i> bred	90
<i>Aventia flexula</i> , Larva of	42
<i>Bactra furfurana</i>	97
<i>lanceolana</i>	97
<i>uliginosana</i>	97

	XV. PAGE
<i>Batrachedra præangusta</i>	90, 118, 140
<i>Brahmaea japonica</i> (sp. n.), Butler ...	56
<i>Calamia phragmitidis</i>	180
<i>Capua ochraceana</i>	65
<i>Caradrina Morpheus</i> , Larva of	254
<i>Cartella bilunana</i>	65
<i>Catoptria aspidiscana</i>	7, 39
<i>cæcimaculana</i>	9
<i>cana</i>	4
<i>conterminana</i>	9
<i>expallidana</i>	9
<i>fulvana</i>	5
<i>Hohenwarthiana</i>	5
<i>modestana</i>	8
<i>parvulana</i>	8
<i>Scopoliana</i>	4, 7
<i>Charaxes Cedreatis</i> (sp. n.), Hewits.	247
<i>Jasius</i> , Larva of	113
<i>nobilis</i> (sp. n.), Druce... ..	13
<i>Pythodoris</i> " Hewits.	57
<i>Chimatophila mixtana</i>	98
<i>Coccyx distinctana</i>	65
<i>finitimana</i>	65
<i>Hyciniana</i>	65
<i>Coleophora fuscociliella</i>	40
<i>Colias Cæsonia</i>	249
<i>chrysotheme</i>	249
<i>Philodice</i>	249
<i>Crambus pinetellus</i> , Larva of	162
<i>Cræsia Bergmanniana</i>	98
<i>Forskaleana</i>	98
<i>Holmiana</i>	98
<i>Danaïs Archippus</i>	250
<i>Debis Portlandia</i>	251
<i>Dianthæcia conspersa</i> , Black variety of	20
<i>Dicrorampha herbosana</i>	38
<i>Dictyopteryx contaminana</i>	97
<i>Lœflingiana</i>	97
<i>Shepherdana</i>	97
<i>Emmelesia blandiata</i>	179
<i>Ennychia octomaculalis</i>	40
<i>Ephestia elutella</i> , Larva of	213
<i>Ephippiphora argyrana</i>	146
<i>nigricostana</i>	146
<i>regiana</i>	146
<i>Trauniana</i>	146
<i>vernana</i>	146
<i>Ephyra pendularia</i> , Larva of	71
<i>Epitola Carcina</i> (sp. n.), Hewitson ...	150
<i>Cephena</i> " "	151
<i>Ceraunia</i> " "	149
<i>Cercene</i> " "	150

	PAGE		PAGE
Epitola Hyetta (sp. n.), Hewits...	150	Herminia derivialis	102
Zelza " "	151	tarsipennalis	101
Eronia Zelinda " Ward	59	Hesperia Actæon, Larva of	86
Eubolia lineolata, Larva of	255	Ahaton	251
Eucelis aurana	146	Wansutta	251
Eupithecia dodoneata	277	Heusimene fimbriana	247
expallidata bred	118	Hypolycæna Aruma (sp. n.), Hewits.	124
succenturiata bred	118	Buxtoni " "	206
Eupœcilia ciliella	40	Mera " "	124
Euryphene Pluto (sp. n.), Ward...	59	Naara " "	124
Gelechia Benedenii " Weyenb.	122	Iolaus Bolissus " "	123
morosa	44	Canissus " "	123
Geometra smaragdaria	180	carina " "	122
Godartia Wakefieldii (sp. n.), Ward	152	Lampides cassioides " Murray	108, 126
Gonepteryx rhamni	20	pseudocassius " "	126
Goniloba Tityrus	251	Lampronia Luzella	40
Gracilaria ononidis	232	Leucania albipuncta	118, 180
Grapta comma	250	Limacodes asellus, Larva of	70
interrogationis	250	Liptena Tera (sp. n.), Hewits.	125
Halonota bimaculana	34	Lithosia griseola	69, 117
Brunnichiana	37	quadra, Larva of...	217
cirsiana	35	stramineola	69, 117
costipunctana	37	Lycæna Alsus, Larva of	43
fœnella	37	Phœbe (sp. n.), Murray	107
grandævana	37, 259	Pryeri " "	126
inopiana	37	Melitæa Artemis, var. n. hibernica, Murray	154
novana	37	Phaeton	250
Pflugiana	37	Miana literosa, Larva of	88
ravulana	37	Micropteryx Thunbergella	40
scutulana	35	Mimæoseptilus aridus, Larva of	182
tetragonana	37	Mycalesis Ibitina (sp. n.), Ward...	60
trigeminana	34	Neptis Nebrodes " Hewits.	206
turbidana	37	Nicomedes " "	205
Harma Harmilla (sp. n.), Hewits.	274	Nicoteles " "	206
Heliada " "	274	Noctua glareosa, Variety of	18
Hedya aceriana	67	Nonagria geminipuncta, Larva of	230
dealbana	66	neurica, Larva of	275
lariciana	66	Notodonta bicolora	180, 212, 213, 230, 253
minutana	67	Nymphalis Arthemis	251
neglectana	67	Disippus	251
ocellana	66	Eurytris	251
pauperana	67	Ursula	251
Paykulliana	66	Ophiodes lunaris	70
Servilliana	67	Oxygrapha Boscana	98
simplana	66	literana	98
trimaculana	67	scabrana	98
Heliconia Theudela (sp. n.), Hewits.	224	scotana	98
Heliothis dipsacea	162	Pachnobia alpina bred	88
marginata	178	Pædisca ophthalmicana	4
Hemerostia Rhediella	98	piceana	2
Herminia barbalis	100	Solandriana	4
cribralis	103	stabilana	3

<i>Pamphila Sylvanus</i>	230	<i>Retinia sylvestrana</i>	246
<i>Pamplusia monticolana</i>	247	<i>Turionella</i>	246
<i>Papilio Asterias</i>	248	<i>Rhodophaea marmorea</i> , Larva of	214
<i>Colonna</i> (sp. n.), Ward	151	<i>Roxana arcuana</i>	144
<i>Philonoë</i> " "	152	<i>Satyrus Alope</i>	251
<i>Thoas</i>	248	<i>Semasia gallicolana</i>	144
<i>Troilus</i>	248	<i>Janthinana</i>	145
<i>Turnus</i>	248	<i>nanana</i>	145
<i>Paramesia aspersana</i>	143	<i>obscurana</i>	144, 244
<i>caledoniana</i>	143	<i>populana</i>	144
<i>ferrugana</i>	143	<i>rufillana</i>	145
<i>Pentila Carnuta</i> (sp. n.), Hewits... ..	125	<i>spiniana</i>	144
<i>Tirza</i> " "	125	<i>vacciniana</i>	146
<i>Peronea comparana</i>	98	<i>Wœberana</i>	145
<i>cristana</i>	143	<i>Sericoris irriguana</i> and <i>Daleana</i>	276
<i>favillaceana</i>	100	<i>Sesia andraniformis</i>	161
<i>Hastiana</i>	100	<i>apiformis</i>	162, 181
<i>Lipsiana</i>	100	<i>asiliformis</i>	161
<i>Maccana</i>	100	<i>bembeciformis</i>	162
<i>permutana</i>	143	<i>chrysidiformis</i>	160
<i>potentillana</i>	99	<i>culiciformis</i>	160
<i>proteana</i>	99	<i>cynipiformis</i>	160
<i>rufana</i>	98	<i>formiciformis</i>	160
<i>Schalleriana</i>	100	<i>ichneumoniformis</i>	160
<i>tristana</i>	100	<i>philanthiformis</i>	160
<i>umbrana</i>	100	<i>scoliiformis</i>	161
<i>variegana</i>	143	<i>sphegiformis</i>	161
<i>Phibalopteryx lapidata</i>	155	<i>Sphinx convolvuli</i>	139
<i>Phyciodes Tharos</i>	250	<i>Steganoptycha geminana</i>	67
<i>Phycis</i> (?) <i>Davisellus</i> , Larva of	89	<i>nævana</i>	67
<i>Phytometra ænea</i> , Egg, &c., of	139	<i>ustomaculana</i>	67
<i>Pieris oleracea</i>	249	<i>Stibomorpha</i> (g. n.) <i>decorata</i> (sp. n.), Butler	205
<i>Protodice</i>	249	<i>Stigmonota compositella</i>	147
<i>Pœcilochroma Bouchardana</i>	143	<i>dorsana</i>	148
<i>corticana</i>	143	<i>Heegerana</i>	147
<i>Hawkerana</i>	143	<i>internana</i>	148
<i>oppressana</i>	144	<i>interruptana</i>	148
<i>profundana</i>	143	<i>Leplastriana</i>	148
<i>signatana</i>	144	<i>nitidana</i>	146
<i>tenerana</i>	143	<i>orobana</i>	148, 244
<i>Polia nigrocincta</i> , Larva of	89	<i>perlepidana</i>	148
<i>Polyommatus Thoe</i>	251	<i>Weirana</i>	146, 244
<i>Pterophorus lithodactylus</i>	40	<i>Stilbia anomala</i>	179
<i>Pyrameis Atalanta</i>	250	<i>Tæniocampa gothica</i> , var. <i>gothicina</i>	277
<i>cardui</i>	250	<i>Teras caudana</i>	143
<i>Huntera</i>	250	<i>Terias Delia</i>	249
<i>Retinia Buoliana</i>	245	<i>Thalpochares parva</i>	40
<i>duplana</i>	246	<i>paula</i>	19
<i>occultana</i>	247	<i>Vanessa Antiopa</i>	20, 40, 139, 250
<i>pinicolana</i>	245	<i>Xylina conformis</i> "	276
<i>pinivorana</i>	246	<i>Zygæna meliloti</i> , Larva of... ..	116
<i>resinella</i>	246		

NEUROPTERA (*in the Linnean sense*).

	PAGE
Acanthaclisis americana	210
Agriion, Mode of egg-laying of	163
Anax longipes	227
Brachycentrus subnubilus, Larva of	257
Cæcilius Dalii	118
Cordulia cynosura	228
Halesus auricollis	140
Hemerobius inconspicuus... ..	91
pellucidus	118
Hetærina Titia	210
Megalomus hirtus near Aberdeen	90

	PAGE
Micromus aphidivorus	118
Neuroptera at Weybridge... ..	91
Nothochrysa capitata	91
Oniscigaster (g. n.), McLachlan	109
Wakefieldi (sp. n.), McL.	110
Ptynx appendiculatus	228
Pyrrhosoma tenellum	91
Semblis ecaudata	228
Sisyra terminalis	91
Sylphis angustipennis	227
Tachopteryx Thoreyi	227
Zetterstedt's Trichoptera, Notes on	163

INDEX TO CONTRIBUTORS.

	PAGE
Allin, J. S.	19, 88
Bates, F.	14, 45
Bates, H. W., F.L.S.	261
Barrett, C. G.	2, 19, 34, 65, 95, 143, 243
Bean, Thomas E.	248
Birchall, Edwin	153, 230
Blackburn, J. B.	178
Blackburn, Rev. T.	68, 252
Bold, T. J.	69, 83, 228
Briggs, T. H., M.A.	116
Buckler, W.	42, 70, 86, 89, 100, 162, 182, 213, 214, 217, 230, 254, 275
Butler, A. G., F.L.S.	56, 204
Cameron, Peter, Jun.	21, 69, 84, 85, 160, 211, 220, 278
Champion, G. C.	39, 168, 159
Cooke, Benjamin	211
Cowper, Richard	83
Dale, C. W.	118, 140
Doubleday, Henry	253
Douglas, J. W.	92, 187, 277
Druce, Herbert, F.L.S.	13
Farn, A. B.	117
Fenn, Charles	40
Fletcher, J. E.	232
Gardner, J.	257
Gill, R. Battershell, M.D.	213
Gorham, Rev. H. S.	224
Goss, Herbert	193
Hardy, J. Ray	212
Healy, Charles	118
Hellins, Rev. J., M.A.	43, 69, 100, 139, 255
Hewitson, W. C., F.L.S.	57, 122, 149, 205, 247, 274
Hodgkinson, J. B.	39, 90, 118, 212, 276
Hodgson, A.	181
Hutchinson, E. S.	277
Jenner, J. H. A.	70
Jenner-Fust, H., M.A.	179
Jones, A. H.	118
Jordan, R. C. R., M.D.	40

	PAGE
Lewis, George	54, 68, 172
Llewelyn, J. T. D., F.L.S.	276
McLachlan, R., F.L.S.	90, 91, 109, 140, 163, 183, 210, 227, 257
Marshall, Rev. T. A., M.A., F.L.S.	166, 207, 222
Marshall, W. C.	181
Meek, E. G.	160
Moncreaff, H.	157
Müller, A., F.L.S.	19, 20
Murray, Rev. R. P., M.A.	108, 126
Norman, George	21
Ormerod, Eleanor A.	196
Pearson, J. H.	113
Porrirt, G. T., F.L.S.	71, 88, 89, 162, 181, 277
Ritsema, C.	223
Rye, E. C., F.Z.S.	18, 73, 83, 131, 136, 137, 167, 176, 209, 229
Sahlberg, Dr. John	242
Sang, John	140
Saunders, E., F.L.S.	91, 165
Scott, John	22, 63, 80, 92, 104, 119, 126, 178, 183, 187, 235, 270, 271, 272
Sharp, D., M.B.	1, 29, 53, 232
Sidebotham, J. E.	83, 253
Smith, Rev. B.	256
Smith, Frederick	111
Stevens, Samuel, F.L.S.	180
Stainton, H. T., F.R.S.	44
Traill, J. W. H., M.A.	39, 85
Varley, J.	139
Walker, J. J.	83, 169, 252
Ward, A. O.	230
Ward, Christopher, F.L.S.	59, 151
Waterhouse, C. O.	17, 75, 157, 175, 203, 226
Waterhouse, E. A.	251
Wellman, J. R.	139
Weyenbergh, Professor	121
White, F. Buchanan, M.D., F.L.S.	60, 75
Wollaston, T. V., M.A., F.L.S.	9, 33, 167, 200

LIST OF NEW GENERA AND SPECIES, &c., DESCRIBED IN THIS VOLUME.

COLEOPTERA.

GENERA.

	PAGE
<i>Æthalides</i> , <i>F. Bates</i>	50
<i>Dendrodipnis</i> , <i>Wollaston</i>	33
<i>Epitoxicum</i> , <i>F. Bates</i>	46
<i>Etnalis</i> , <i>Sharp</i>	32
<i>Lawsonia</i> , <i>Sharp</i>	30
<i>Phænocephalus</i> , <i>Wollaston</i>	167
<i>Pronyssa</i> , <i>H. W. Bates</i>	267
<i>Tarphiomimus</i> , <i>Wollaston</i>	12
<i>Tarphiomimetes</i> , <i>Wollaston</i>	9
<i>Typhlodes</i> , <i>Sharp</i>	1

SPECIES.

<i>Æthalides punctipennis</i> , <i>F. Bates</i> , <i>W.</i> <i>Australia</i>	51
<i>Anisotoma circinipes</i> , <i>Rye</i> , <i>Japan</i>	132
<i>macropus</i> , „ <i>England</i> ...	133
<i>multipunctata</i> , „ <i>Japan</i>	131
<i>Anoplognathus parvulus</i> , <i>C. O. Water-</i> <i>house</i> , <i>E. Australia</i>	75
<i>Aphanocephalus Wollastoni</i> , <i>Rye</i> , <i>Japan</i> ..	167
<i>Apsida æneomicans</i> , <i>F. Bates</i> , <i>Mexico</i> ...	16
<i>Belti</i> , „ <i>Nicaragua</i>	16
<i>Boucardi</i> , „ <i>Mexico</i> ...	17
<i>chrysomelina</i> , „ <i>Nicaragua</i>	15
<i>purpureomicans</i> , „ <i>N. Granada</i>	16
<i>Baridius aterrimus</i> , <i>C. O. Waterhouse</i> , <i>Singapore</i>	226
<i>Cathormiocerus maritimus</i> , <i>Rye</i> , <i>England</i>	176
<i>Cicindela cathaica</i> , <i>H. W. Bates</i> , <i>H. Kong</i>	265
<i>chontalensis</i> , „ <i>Nicaragua</i>	264
<i>delicata</i> , „ <i>N. Guinea</i>	265
<i>grauulipennis</i> , „ <i>Ecuador</i>	265
<i>hilariola</i> , „ <i>Persia</i>	263
<i>igneicollis</i> , „ <i>W. Aus-</i> <i>tralia</i>	263
<i>immanis</i> , „ <i>Yemen</i>	266
<i>nebulosa</i> , „ <i>Nicaragua</i>	263
<i>Wallacei</i> , „ <i>Celebes</i>	264
<i>Chiasognathus pubescens</i> , <i>C. O. Water-</i> <i>house</i> , <i>Venezuela</i>	110
<i>Copelatus signatus</i> , <i>Sharp</i> , <i>Nicaragua</i> ...	53
<i>Cryptamorphia fasciata</i> , <i>Woll.</i> , <i>Japan</i> ...	169
<i>Delognatha brevicornis</i> , <i>F. Bates</i> , <i>Esp.</i> <i>Santo</i>	48
<i>Buckleyi</i> , „ <i>Ecuador</i>	49
<i>puncticollis</i> , „ <i>Brazil</i>	49

<i>Dendrodipnis cænopus</i> , <i>Woll.</i> , <i>Japan</i>	34
<i>Diaperis Lewisi</i> , <i>F. Bates</i> , <i>Japan</i>	14
<i>sanguinipennis</i> , „ <i>Ceylon</i>	14
<i>Dineutes truncatus</i> , <i>Sharp</i> , <i>Nicaragua</i> ...	54
<i>Dromius vectensis</i> , <i>Rye</i> , <i>England</i>	73
<i>Epitoxicum haplandroides</i> , <i>F. Bates</i> , <i>India</i>	46
<i>Etnalis spinicollis</i> , <i>Sharp</i> , <i>N. Zealand</i> ...	32
<i>Holoparamesus capitatus</i> , <i>Woll.</i> , <i>Japan</i> ...	202
<i>contractus</i> , „ „ ...	203
<i>ellipticus</i> , „ „ ...	201
<i>signatus</i> , „ „ ...	202
<i>Ischiodontus Candezei</i> , <i>Ritsema</i> , <i>Congo</i> ...	223
<i>Isonychus maculatus</i> , <i>C. O. Waterhouse</i> , <i>Granada</i>	203
<i>Laccophilus apicalis</i> , <i>Sharp</i> , <i>Nicaragua</i> ...	53
<i>Lawsonia longicornis</i> , „ <i>N. Zealand</i> ..	30
<i>variabilis</i> , „ „ ...	31
<i>Leucohimatium breve</i> , <i>Woll.</i> , <i>Japan</i>	170
<i>Liosomus troglodytes</i> , <i>Rye</i> , <i>England</i>	136
<i>Megacephala excelsa</i> , <i>H. W. Bates</i> , <i>Ribé</i>	261
<i>Megalophrys Waterhousii</i> , <i>F. Bates</i> , <i>Valdivia</i>	47
<i>Menthophilus tuberculatus</i> , <i>C. O. Water-</i> <i>house</i> , <i>N. Holl.</i>	176
<i>Odontocheila nicaraguensis</i> , <i>H. W. Bates</i> , <i>Nicaragua</i>	268
<i>rufiscapis</i> , <i>H. W. Bates</i> , <i>Ecuador</i>	268
<i>Salvini</i> , „ <i>Panama</i>	267
<i>Onosterrhus punctulatus</i> , <i>F. Bates</i> , <i>W.</i> <i>Australia</i>	51
<i>Oxycheila gratiosa</i> , <i>H. W. Bates</i> , <i>N.</i> <i>Granada</i>	262
<i>Peneta cervus</i> , <i>F. Bates</i> , <i>Peru</i>	50
<i>Phænocephalus castaneus</i> , <i>Woll.</i> , <i>Japan</i> ...	168
<i>Polpogenia Laglaizii</i> , <i>F. Bates</i> , <i>W. Africa</i>	47
<i>Pronyssa nodicollis</i> , <i>H. W. Bates</i> , <i>Dar-</i> <i>jeeling</i>	267
<i>Saula japonica</i> , <i>Gorham</i> , <i>Japan</i>	224
<i>Silis apicalis</i> , <i>C. O. Waterhouse</i> , <i>Angola</i> ..	157
<i>Symbiotes niponensis</i> , <i>Gorham</i> , <i>Japan</i> ...	225
<i>Tarphiomimetes Lawsoni</i> , <i>Woll.</i> , <i>N.</i> <i>Zealand</i>	11
<i>viridipicta</i> , „ „ ..	11
<i>Tarphiomimus indentatus</i> , „ „ ..	13
<i>Tenuoplectron læve</i> , <i>C. O. Waterhouse</i> , <i>Queensland</i>	175
<i>parvulum</i> , „ <i>Japan</i>	175

	PAGE
<i>Tetracha fuliginosa</i> , <i>H. W. Bates</i> , <i>Nicaragua</i>	261
<i>Thallestus rufopictus</i> , <i>Woll.</i> , <i>Japan</i>	172
suffusus, " "	171
throscoides, " "	171
<i>Therates Erinnyis</i> , <i>H. W. Bates</i> , <i>N. Borneo</i>	269
<i>Toxicum picticollis</i> , <i>F. Bates</i> , <i>New Guinea</i>	45, 52
<i>Triphyllus Lewisianus</i> , <i>Woll.</i> , <i>Japan</i>	170
<i>Typhlodes italicus</i> , <i>Sharp</i> , <i>Florence</i>	2

HEMIPTERA-HETEROPTERA.

GENUS.

<i>PLAGIOTYLUS</i> (Fieber), <i>Scott</i>	272
---	-----

SUB-GENERA.

<i>CALLICORIXA</i> , <i>White</i>	62
<i>MACROCORIXA</i> , "	62
<i>OREINOCORIXA</i> , "	63

SPECIES.

<i>Emesa corsicensis</i> , <i>Scott</i> , <i>Corsica</i>	271
<i>Emesodema Huttoni</i> , " <i>N. Zealand</i> ..	271
<i>Plagiotylus maculatus</i> , " <i>Torla</i>	273

HEMIPTERA-HOMOPTERA.

<i>Idiocerus venustus</i> , <i>Scott</i> , <i>England</i>	240
<i>Liburnia guaramanensis</i> , " <i>Spain</i> ..	106
<i>Lethierryi</i> , " <i>Corsica</i> ..	105
<i>Marshalli</i> , " " ..	104
<i>scutellata</i> , " <i>England</i> ..	107
<i>Pediopsis distinctus</i> , " " ..	192
<i>tibialis</i> , " " ..	195
<i>ulmi</i> , " " ..	129

HYMENOPTERA.

GENUS.

<i>ALERIA</i> , <i>Marshall</i>	208
---------------------------------------	-----

SPECIES.

<i>Aleria flavibarbis</i> , <i>Marshall</i> , <i>Corsica</i> ..	208
<i>Dryinus corsicus</i> , " " ..	207
<i>Isobrachium maculipenne</i> , " " ..	222
<i>Nematus graminis</i> , <i>Cameron</i> , <i>Britain</i> ..	221
<i>Taxonus glottianus</i> , " <i>Scotland</i> ..	220

LEPIDOPTERA.

GENUS.

<i>STIBOMORPHA</i> , <i>Butler</i>	204
--	-----

SPECIES.

<i>Acræa Cydonia</i> , <i>Ward</i> , <i>Camaroons and Angola</i> ..	59
<i>Rabbaiæ</i> , " <i>Ribé</i>	152

<i>Acræa Rogersi</i> , <i>Hewits.</i> , <i>Angola</i>	57
sambavæ, <i>Ward</i> , <i>Madagascar</i> ..	59
<i>Apatura Cleochares</i> , <i>Hewits.</i> , <i>Angola</i> ..	58
<i>Asthenia cognatana</i> , <i>Barrett</i> , <i>Scotland</i> ..	244
<i>Brahmæ Japonica</i> , <i>Butler</i> , <i>Japan</i> ..	56
<i>Charaxes Cedreatis</i> , <i>Hewits.</i> , <i>W. Africa</i> ..	247
nobilis, <i>Druce</i> , <i>Old Calabar</i> ..	13
<i>Pythodoris</i> , <i>Hewits.</i> , <i>Angola</i> ..	57
<i>Epitola Carcina</i> , <i>Hewits.</i> , <i>Old Calabar</i> ..	150
<i>Cephena</i> , " <i>Gaboon</i>	151
<i>Ceraunia</i> , " <i>W. Africa</i>	149
<i>Cercene</i> , " <i>Angola</i>	150
<i>Hyetta</i> , " "	150
<i>Zelza</i> , " <i>Old Calabar</i> ..	151
<i>Eronia Zelinda</i> , <i>Ward</i> , <i>Ribé and Angola</i> ..	59
<i>Euryphene Pluto</i> , " <i>Camaroons</i>	59
<i>Gelechia Benedenii</i> , <i>Weyenb.</i> , <i>St. Vincent</i> ..	122
<i>Godartia Wakefieldii</i> , <i>Ward</i> , <i>Ribé</i>	152
<i>Harma Harmilla</i> , <i>Hewits.</i> , <i>Cameroons</i> ..	274
<i>Heliada</i> , " " ..	274
<i>Heliconia Theudela</i> , " <i>Panama</i> ..	224
<i>Hypocæna Aruma</i> , " <i>Gaboon</i> ..	124
<i>Buxtoni</i> , " <i>S. Africa</i> ..	206
<i>Mera</i> , " <i>Angola</i> ..	124
<i>Naara</i> , " " ..	124
<i>Iolaus Bolissus</i> , <i>Hewits.</i> , <i>Congo</i>	123
<i>Canissus</i> , " <i>S. Africa</i>	123
<i>Carina</i> , " <i>W. Africa</i>	122
<i>Lampides pseudocassius</i> , <i>Murray</i> , <i>Brisbane</i>	108, 126
<i>Liptena Tera</i> , <i>Hewits.</i> , <i>Gaboon</i>	125
<i>Lycæna Phæbe</i> , <i>Murray</i> , <i>Australia</i> ..	108
<i>Pryeri</i> , " <i>Japan</i>	126
<i>Melitæa Artemis</i> , var. <i>hibernica</i> , <i>Birchall</i> , <i>Ireland</i>	154
<i>Mycæsis Ibitina</i> , <i>Ward</i> , <i>Madagascar</i> ..	60
<i>Neptis Nebrodes</i> , <i>Hewits.</i> , <i>Angola</i>	206
<i>Nicomedes</i> , " "	205
<i>Nicoteles</i> , " "	206
<i>Papilio Colonna</i> , <i>Ward</i> , <i>Ribé</i>	151
<i>Philonoë</i> , " "	152
<i>Pentila Carnuta</i> , <i>Hewits.</i> , <i>Gaboon</i>	125
<i>Tirza</i> , " "	125
<i>Stibomorpha decorata</i> , <i>Butler</i> , <i>Chili</i>	205

NEUROPTERA.

GENUS.

<i>ONISCIGASTER</i> , <i>McLach.</i>	109
--	-----

SPECIES.

<i>Oniscigaster Wakefieldi</i> , <i>McLach.</i> , <i>N. Zealand</i> ..	110
---	-----

ADDITIONS TO THE BRITISH INSECT FAUNA BROUGHT FORWARD IN THIS VOLUME.

COLEOPTERA.

GENUS.	PAGE
<i>Hylurgus</i> , <i>Latr.</i>	209
 SPECIES.	
<i>Anisotoma macropus</i> (sp. n.), <i>Rye</i>	133
<i>pallens</i> , <i>Sturm</i>	135
<i>Cathormiocerus maritimus</i> (sp. n.), <i>Rye</i> ...	176
<i>Dromius vectensis</i> (sp. n.), <i>Rye</i>	73
<i>Harpalus quadripunctatus</i> , <i>Dej.</i>	68, 158
<i>Hylurgus piniperda</i> , <i>Fab.</i>	209
<i>Liosomus troglodytes</i> (sp. n.), <i>Rye</i>	136

HEMIPTERA-HETEROPTERA.

GENUS.	PAGE
<i>Loxops</i> , <i>Fieb.</i>	62
 SPECIES.	
<i>Loxops coccineus</i> , <i>Meyer</i>	64

HEMIPTERA-HOMOPTERA.

<i>Agallia brachyptera</i> , <i>Boh.</i>	238
<i>Bythoscopus alni</i> , <i>Schrank</i>	82
<i>rufusculus</i> , <i>Fieb.</i>	241
<i>Idiocerus confusus</i> , <i>Flor.</i>	81
<i>fulgidus</i> , <i>Fab.</i>	80
<i>H-album</i> , <i>Fieb.</i>	26, 92
<i>venustus</i> (sp. n.), <i>Scott</i>	239
<i>Liburnia perspicillata</i> , <i>Boh.</i>	270
<i>scutellata</i> (sp. n.), <i>Scott</i>	107
<i>Pediopsis cereus</i> , <i>Germ.</i>	130
<i>distinctus</i> (sp. n.), <i>Scott</i>	191
<i>fuscinervis</i> , <i>Boh.</i>	192
<i>impurus</i> , <i>Boh.</i>	190
<i>nanus</i> , <i>H.-Sch.</i>	235
<i>tibialis</i> (sp. n.), <i>Scott</i>	195
<i>tiliæ</i> , <i>Germ.</i>	128
<i>ulmi</i> (sp. n.), <i>Scott</i>	129

HEMENOPTERA.

GENUS.	PAGE
<i>Cænoneura</i> , <i>Thoms.</i>	85
[N.B.—Thomson writes this genus <i>Cænoneura</i> ; but, from his diagnosis, evidently in error.]	
 SPECIES.	
<i>Andricus amenti</i> , <i>Gir.</i>	85
<i>quadrilineatus</i> , <i>Htg.</i>	39, 85
<i>Blennocampa pusilla</i> , <i>Htg.</i>	113
<i>Cynips ferruginea</i> , <i>Htg.</i>	85
<i>Hoplocampa pectoralis</i> , <i>Thoms.</i>	278
<i>rutilicornis</i> , <i>Klug</i>	113
<i>Nematus croceus</i> , <i>Fall.</i>	211
<i>graminis</i> (sp. n.), <i>Cameron</i>	221
<i>mollis</i> , <i>Hart.</i>	212
<i>obductus</i> , <i>Hart.</i>	211
<i>pallipes</i> , <i>Fall.</i>	211
<i>quercûs</i> , <i>Hart.</i>	160
<i>Pæcilosoma obtusum</i> , <i>Thoms.</i>	278
<i>pulveratum</i> , <i>Retz.</i>	69
<i>Spathogaster vesicatrix</i> , <i>Schlecht.</i>	85
<i>Strongylogaster filicis</i> , <i>Klug</i>	69
<i>mixtus</i> , „	278
<i>Taxonus coxalis</i> , <i>Htg.</i>	113
<i>glottianus</i> (sp. n.), <i>Cameron</i> ..	220
? <i>sticticus</i> , <i>Klug</i>	113
<i>Tenthredo moniliata</i> , <i>Klug</i>	160

LEPIDOPTERA.

<i>Anchylopera inornatana</i> , <i>H.-Sch.</i>	95
<i>Asthenia cognatana</i> (sp. n.), <i>Barrett</i>	244
<i>Thalpochara paula</i> , <i>Hüb.</i>	19

LARVÆ OF BRITISH SPECIES DESCRIBED IN THIS VOLUME.

LEPIDOPTERA.

	PAGE
<i>Apamea gemina</i> , <i>W. Buckler</i> - - - - -	-
<i>Aventia flexula</i> , „ - - - - -	42
<i>Caradrina morpheus</i> , „ - - - - -	254
<i>Crambus pinetellus</i> , „ - - - - -	162
<i>Ephestia elutella</i> , „ - - - - -	213
<i>Ephyra pendularia</i> , <i>G. T. Porritt</i> - - - - -	71
<i>Eubolia lineolata</i> , <i>Rev. J. Hellins</i> - - - - -	255
<i>Herminia barbalis</i> , <i>W. Buckler</i> - - - - -	100
„ <i>cribralis</i> , <i>Rev. J. Hellins</i> - - - - -	103
„ <i>derivalis</i> , <i>W. Buckler</i> - - - - -	102
„ <i>tarsipennalis</i> , „ - - - - -	101
<i>Hesperia Actæon</i> , „ - - - - -	86
<i>Limacodes asellus</i> , „ - - - - -	70
<i>Lithosia quadra</i> , „ - - - - -	217
<i>Lycæna Alsus</i> , <i>Rev. J. Hellins</i> - - - - -	43
<i>Miana literosa</i> , <i>G. T. Porritt</i> - - - - -	89
<i>Nonagria geminipuncta</i> , <i>W. Buckler</i> - - - - -	230
„ <i>neurica</i> , „ - - - - -	275
<i>Phycis</i> (?) <i>Davisellus</i> , „ - - - - -	89
<i>Zygæna meliloti</i> , <i>T. H. Briggs</i> - - - - -	116

NEUROPTERA.

<i>Brachycentrus subnubilus</i> , <i>R. McLachlan</i> - - - - -	257
---	-----

REVIEWS.

“ <i>Les Papillons Diurnes de Belgique</i> .”— <i>L. Quaedvlieg</i> - - - - -	44
“ <i>On the Ancestry of Insects</i> .”— <i>A. S. Packard, Jun.</i> - - - - -	93
“ <i>Fifth Annual Report of the Noxious, Beneficial, and other Insects of the State of Missouri</i> .”— <i>C. V. Riley</i> - - - - -	94
“ <i>Monograph of the Collembola and Thysanura</i> .”— <i>Sir J. Lubbock</i> - - - - -	120
“ <i>Endomycei recitati</i> .”— <i>H. S. Gorham</i> - - - - -	141
“ <i>Researches in Zoology</i> .”— <i>J. Blackwall</i> - - - - -	141
“ <i>The Object and Method of Zoological Nomenclature</i> .”— <i>D. Sharp</i> - - - - -	215
“ <i>On the Origin and Metamorphoses of Insects</i> .”— <i>Sir J. Lubbock</i> - - - - -	215
“ <i>Lepidoptera — Rhopaloceres and Heteroceres — indigenous and exotic</i> .”— <i>H. Strecker</i> - - - - -	233

O B I T U A R Y.

	PAGE
Alexis Fedtschenko - - - - -	141
G. R. v. Frauenfeld - - - - -	166
J. J. Kaup - - - - -	166
J. R. Schiner - - - - -	166
Charles Campbell - - - - -	183
F. E. Guérin-Méneville - - - - -	233

W O O D - C U T S.

Oniscigaster Wakefieldi, McLach. (sp. n.) - - - - -	110
Volucella bombylans (7 figs.) - - - - -	197—199

E R R A T A.

Page 69, cancel lines 14 to 19 (inclusive) from bottom.

- „ 156, line 8 from top, for “ANGULALIS” read “CINGULALIS.”
 „ 175, „ 5 „ „ „ “undulata” „ “sinuata.”
 „ 212, bottom line, „ “unability” „ “inability.”
-



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DESCRIPTION OF A NEW GENUS AND SPECIES OF BLIND COLEOPTERA FROM ITALY.

BY D. SHARP, M.B.

TYPHLODES: *gen. nov.* *Xantholinorum*, inter genera *Leptacinum* et *Leptolinum* locandum.

Antennæ geniculatæ.

Palpi maxillares articulo ultimo præcedente multo minore.

Oculi fere nulli.

Thorax linea marginali superiore deficiente.

Coxis intermediis distantibus.

Labrum deeply divided in the middle, each of the two lobes rounded: labial palpi very short, the terminal joint much more slender than the preceding joint, but nearly as long as it. Maxillary palpi short, their terminal joint not more than half the length or half the breadth of the preceding joint. Mandibles short, very stout. Antennæ rather long, the first joint elongate, and the second and third articulations much longer than the following joints. Head with four obsolete furrows in front, the lateral ones very oblique. Eyes apparently absent, but, on a minute examination being made, traces of them are to be seen in the form of a very small and almost ungranulated spot on each side of the head, close to the base of the mandible. Thorax with the side piece broad in the middle but narrow at the base, the upper marginal line absent, except at the extreme base, where it is present, although very fine. Anterior tarsi not dilated, but stouter than those of the other legs. Intermediate coxæ moderately separated; breast very short. The four hinder tarsi slender. The suture of the elytra imbricate.

The place of this genus appears to me to be between *Leptacinus* and *Leptolinus*. It differs from *Leptacinus* by the elongate basal joints of the antennæ, by the indistinct frontal grooves, and by the absence of the upper side-line of the prothorax. It is more nearly allied to *Leptolinus*, from which it differs by the absence of eyes, by its undilated anterior tarsi, by its shorter palpi, and by its distinctly indicated frontal furrows. It has much of the form and size of a slenderly built individual of *Xantholinus tricolor*.

TYPHLODES ITALICUS, n. sp.

Linearis, sub-depressus, ferrugineus, sat nitidus; prothorace irregulariter minus dense punctato, areâ latâ longitudinali impunctatâ; elytris thorace brevioribus.

Long. corp. (abdomine extenso) 5 lin.

Antennæ reddish, thickened towards the extremity, the basal joint a little curved, about as long as the five following joints, 3rd joint longer than 2nd, 4th joint slightly transverse, from this to the 10th each joint is a little broader than its predecessor, the 10th being rather strongly transverse, the 11th joint is obtusely pointed, scarcely twice as long as the 10th. Head a little darker in colour than the other parts, broader than the thorax, a little narrowed towards the front, the hind angles rounded, the upper surface rather finely punctured, the punctures at the back not so close but more distinct than at the front. Thorax much longer than broad, narrowed towards the base, its width near the front slightly greater than that of the elytra, the sides irregularly punctured; a broad space along the middle smooth. Scutellum almost impunctate. Elytra shorter than the thorax, rather sparingly and irregularly punctured. Hind-body sparingly punctured, rather broader towards the extremity than at the base.

This very interesting insect was captured by Signor Bargagli in the neighbourhood of Florence, in the presence of Dr. C. A. Dohrn of Stettin; and it is to the liberality of the latter gentleman that I am indebted for its communication. Full particulars of its capture may be found in the Stett. ent. Zeit. 1871, p. 275, where, however, the creature is alluded to under the name of *Glyptomerus etruscus*, to which it bears a considerable resemblance in size and colour, though very distinct therefrom structurally. I believe it has not yet been found a second time.

Eccles, Thornhill, Dumfries :
5th May, 1873.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from Vol. ix, p. 267).

Pædisca piceana, Haw.—It is impossible to say with any certainty what Haworth's *piceana* is. "Wings all shining; anterior "pitchy, spotless; posterior very pale fuscous," can hardly be considered a description of this species (Wood's figure 1030 is not recognisable—indeed, Wocke quotes it as a var. of *Solandriana*), and, accordingly, Doubleday, Wocke, and Zeller substitute *semifuscana*, Steph., the name of a striking variety of this species, about which there can be no question, as it is figured by both Stephens and Wood; and this name must be retained. Unfortunately, Wilkinson's description of

piceana is also unsatisfactory, referring to but one variety, and that by no means the commonest, and he also includes *sordidana* as a variety of it, although this is actually synonymous with the next species.

The beautiful and rather uncommon form which originally bore the name *semifusca* is of a deep purple-brown along the costa, and creamy-white along the inner margin, with three projections of the dark colour into the white, one before the middle obtusely angulated, one much more acute from beyond the middle, projecting towards the anal angle, and a third pointing inwards from the apex of the wing. Another variety has the costa and inner margin fuscous, with a bronzy-brown streak down the middle, widening regularly from the base. But the more ordinary forms are dark brown, fuscous, purplish-fuscous, ochreous-brown, or reddish-brown, all with more or less distinct darker markings, consisting of an oblique *slightly indented* streak from near the base of the inner margin, meeting another from near the anal angle, and thus enclosing a dorsal blotch hardly paler than the ground colour. In the reddish and ochreous-brown specimens these streaks form the margins of fasciæ which reach the costa, and towards the apex there are some dark blotches. A very curious dwarf variety is found in Lancashire, of a pale fuscous or cinereous colour, with only a faint indication of the apex of the second dorsal streak, and has been placed in some collections as *sordidana*: it is certainly a variety of *semifusca*. This species may be readily distinguished from both *Solandriana* and *sordidana* by its more shining appearance, slightly narrower fore-wings, and the pale or whitish-grey colour of its hind-wings.

The larva feeds on sallow, and the perfect insect may be found among sallows from the end of July to the beginning of October. Its habit is to fly for about half-an-hour at dusk; and it is rather easily detected by an energetic collector through its pale hind-wings. Sometimes it flies again after dark, and is strongly attracted by a lantern.

Pædisca stabilana, Steph.—Wilkinson's description of this species is also unsatisfactory, and, indeed, appears more applicable to the reddish varieties of *semifusca*; yet, from his observations in larger print, it is evident that *sordidana*, Hüb., is the species referred to, and this correction has accordingly been made by Mr. Doubleday in his list, as well as by Dr. Wocke.

This species is far more constant in colour than *Solandriana* and *semifusca*, being of a dull, pale brown, covered with a reticulation of minute dark brown scales, upon the depth and abundance of which its shade of darker or lighter colour depends. Its markings are very

indistinct, consisting of an oblique, *regularly curved* streak from near the base of the inner margin, meeting a very faint central fascia, and thereby enclosing a slightly paler blotch, which, from an indentation in the central fascia, has a double apex.

It may best be distinguished from the allied species by its dull brown colour and *pale greyish-brown* hind-wings. It flies in September and October among alder, upon which its larva feeds, and is not uncommon in fenny and marshy districts.

Pædisca Solandriana, Linn.—This abundant species is so well known, that a description of its numerous and striking varieties seems unnecessary. It may generally be distinguished from the two preceding species by its grey hind-wings with darker apex, and from *semifuscana* also by the greater breadth of its fore-wings.

The larva feeds on birch and hazel, and the perfect insect flies, like its congeners, at dusk, and is also readily beaten out of hedges in the afternoon during July and August.

Pædisca ophthalmicana, Hüb.—A very distinct species, said to feed upon aspen (*Populus tremula*).

Catoptria Scopoliiana, Wilk. (*non* Haw.).—Professor Zeller tells me that this is *Hohenwarthiana* of German authors, but of this I must say more presently, as there is great confusion in the names of this and the two next species.

Haworth's description of *Tortrix cana* (p. 456)—“Wings greyish-white, somewhat *clouded with fulvous*, with oblique costal streaks “*silvered over towards the tips*” * * * “Very like the preceding “(*pupillana* = *fulvana*, Steph.) but different in colour, *costal strigæ* “*more silvery, ocellus more silvery and continuous*”—certainly refers to this species: it can be no other. Stephens' description is a copy of this, and Wood's fig. 987, though not very good, is evidently intended for it—witness the longitudinal streaks.

Guenée's *carduana*—“Head and thorax fulvous, anterior wings “whitish, fulvous at the base, with longitudinal lines and clouds, and “a silvery speculum with black lines. Posterior wings cinereous, “paler in the middle in both sexes”—is also this species, and a far better description of it; but Haworth's description being fully recognisable, I think it only just to restore his name. The synonymy of this species will therefore be

(*Catoptria*, Gn.) *cana*, Haw., Steph., Wood (987).

carduana, Gn.

Scopoliiana, Wilk.

? *Hohenwarthiana*, Schiff., Tr., H.-S.

This species seems to be exclusively attached to thistles.

Catoptria fulvana, Steph., Wilk.—Haworth's description of *pupillana*—"Fore-wings inclined to fulvous, the costa having numerous "short, oblique, white and fulvous streaks * * * the apex acute " * * * an ocellus near the anal angle with an interrupted iris," &c., is clearly this species. Stephens' description of *fulvana* (*pupillana* being a name already occupied in the genus) is a copy of Haworth's, and Wood's fig. 986 agrees well with a specimen which I have received from Mr. Doubleday—that is, one rather more unicolorous than those which I take near Norwich. Professor Zeller tells me that this is *jaceana* of Herrich-Schäffer, but, as Stephens' name is long anterior, it must be retained. Its synonymy will therefore be

(*Catoptria*, Gn.) *fulvana*, Steph., Wood (986), Wilk.

pupillana, Haw. (non Lin.).

jaceana, H.-S., Hein. (teste Zeller).

Wocke sinks it into a var. of *Hohenwarthiana*, making it synonymous with *pupillana*, Hüb., but not with *fulvana*, Steph.: a curious error.

This species is certainly very local, occurring principally on the chalk. It is rather common in June near Norwich and at Brandon, among *Centaurea scabiosa*, upon which its larva doubtless feeds. It is unquestionably a distinct species, and may be readily known by the pointed apex of its fore-wings, as well as by its delicate fulvous colour.

Catoptria Hohenwarthiana, Wilk.—This name has been applied to the species which Wilkinson described, upon the authority of Guenée, who says it is certainly the *Hohenwarthiana* of German authors. Professor Zeller, however, assures me that it is quite new to him, while he regards the common thistle species (*cana*) as *Hohenwarthiana*.

With regard to this last name, Treitschke writes (vol. viii, p. 204),* "Under the name of *Hohenwarthiana*, the authors of the Vienna catalogue, and all subsequent collectors at Vienna, have always understood simply Hübner's *pupillana*. The size is that of *hamana*, yet "just as variable. Head and palpi are whitish-brown, thorax leather-brown, abdomen and legs silvery-grey, antennæ dark brown. The "anterior wings have a petrified-wood-like veined mixture of pale "cinnamon colour and yellow and whitish-brown. From the second "half of the costa arise about four pairs of white double lines, which, "with the exception of the last straight pair, are all curved towards "the apex of the wing. At the hinder margin under these streaks is "a white shield filled up with gold, and three black streaks. Before "the cilia, which are of the ground colour, is a white line, and a row of "very dark cinnamon-brown dots. * * *

* For this extract I am indebted to Mr. Stainton.—C. G. B.

"One finds varieties of this, as of the following species (*hypericana*), in which the ground colour of the anterior wings is of a golden colour, others in which it is of a dark brown-grey. Sometimes also the shield and the white streaks are absent. These specimens *can hardly be distinguished from hypericana*. * * *

"The rather scarce imago should fly in July; its larva should occur on *Hypericum quadrangulum*" (!!).

Vol. x, part 3, p. 110, he adds the following note on *Hohenwarthiana*—"It runs through, in a number of varieties, every modification from light cinnamon-brown and red-brown to pale whitish yellow-grey. It is often confounded with *hypericana*, and the cinnamon coloured varieties of *Hohenwarthiana* are referred to that species. * * * A closer acquaintance with the true *Hohenwarthiana* has shown me that the white marginal shield contains not *three* longitudinal streaks, but at most only *two*, composed of spots, and rarely the traces of a third."

Of *hypericana* he says—"Specimens which I previously had referred to this belong to the previous species (*Hohenwarthiana*): *hypericana* has in the marginal shield *three*, not composed of dots, distinct black longitudinal streaks. This character separates it most certainly from *Hohenwarthiana*."

Now, from all this it seems evident that Treitschke's *Hohenwarthiana* was either a jumble of distinct species (possibly including the present and its allies), or else a species not known in this country at all, and very distinct from ours, and to this the passages in his description which I have italicised seem to point. There can be very little risk of confusing either of the species of this group with *hypericana*, neither does either of them show any preference for *Hypericum quadrangulum*; indeed, they nearly always occur in chalky or sandy fields, rather than in the marshy places and ditch sides in which the *Hypericum* loves to grow. Moreover, Hübner's *pupillana* is of a dull yellowish-brown, paler at the base, with leaden-silvery markings, but far too *broad in the wing* for either of the present species. Therefore, it appears clear that we may safely drop the name *Hohenwarthiana* altogether.

But Haworth's diagnosis of *Tort. Scopoliana* (p. 456)—"Wings *reddish-fuscous*, with the ordinary median spot ashy, and another *more obscure* in the anal angle" alone suffices absolutely to indicate this species, and the descriptions of its varieties which follow confirms it. Stephens copies the name and the description with very little alteration, while Wood (fig. 988) gives a most accurate representation of

this species under the same name, and, therefore, even supposing Guenée to be correct in saying that this is *Hohenwarthiana* of German authors, Haworth's name would take precedence (1812), Treitschke's description not being published till 1830, while Schiffermüller's name (1776) was published without a detailed description, and therefore cannot well be identified.

The synonymy of this species will therefore be

(*Catoptria*, Gn.) *Scopoliana*, Haw., Steph., Wood (988).

Hohenwarthiana, Gn., Wilk. (*non* Tr., &c.).

It occurs commonly among *Centaurea nigra*, upon the seeds of which the larva appears to feed, and not especially among thistles, as stated by Wilkinson.

I suspect that much of the confusion in which these three species have been involved has arisen from the fact that *cana* is variable, and both the others rather local—*fulvana* very so, and *Scopoliana* apparently unknown in Germany, although it certainly occurs in France.

Haworth collected in Norfolk, where all three species are common, and no doubt was well acquainted with them; but Stephens mixed the names, making *carduana*, Gn. (*cana*) synonymous with *Scopoliana*, Wood, although they are obviously distinct. Dr. Wocke also has mixed them hopelessly; but he marks *carduana*, Gn., as unknown to him, and had not therefore a fair chance of quoting correctly.

Catoptria aspidiscana, Hüb.—Recorded as British in the Entomologist's Annual for 1868, p. 110, but without description. Stephens (Illust. 4, p. 120) describes an insect under this name, which may be this species, but in his Museum Catalogue he removes it to his list of reputed British species. Wood's fig. 978 (*aspidiscana*) seems to be a male *Carpocapsa grossana*; therefore, I think it best to append a description.

♂. Head, antennæ, and palpi dark grey, face whitish, thorax dark brown, patagia paler. Ground colour of fore-wings pale grey, much streaked longitudinally with darker, basal patch reddish-brown (with a tinge of olive at the base), acutely angulated exteriorly. Central fascia also reddish-brown and angulated, the colour being produced from the angle above the ocellus. From the costa, beyond the fascia, arise eight short silvery streaks, the first and last being the longest. Ocellus silvery, enclosing three black lines, the outer ones thick and distinct. Cilia mixed reddish-brown and pale grey. Hind-wings grey with paler cilia.

♀. Darker in colour. Fore-wings shorter and more truncate.

This species has a general appearance of being pervaded with longitudinal dark streaks.

According to M. Jourdheuille's Calendar, the larva feeds in silken tubes in the midst of flowers of *Solidago virgaurea* and *Chrysocoma linosyris*.

Taken rather freely in the north of England by Mr. J. B. Hodgkinson in May and June.

Catoptria (*Grapholita*, Wilk.) *modestana*, H.-S.—I find it advisable to notice this species here, removing it from its unsuitable position in another family, because of its near relationship with species in this genus. It is a variable and local species, and much confusion has arisen in consequence respecting its correct name. Mr. Doubleday sent specimens some years ago to the late Herr Lederer, of Vienna, who returned them named *conterminana*, H.-S., while Dr. Wocke makes this species synonymic with *modicana*, Zeller, and Prof. Zeller himself thought it might be a variety of that species.

For an opportunity of working it out I am indebted to my friend Mr. Howard Vaughan, who, in July and August, 1872, collected a large number of specimens at Southend, and sent me a long and most variable series, ranging from pale fulvous almost without markings to blackish with all the markings (except the silvery ocellus) obscured. Between these were well marked specimens agreeing with Wilkinson's description, others agreeing with those named *conterminana* by Lederer, and some (the central and apparently typical form) being identical with a type of *æmulana*, Schläger, sent by Zeller. None, however, approach at all to the larger and plainer *conterminana*, nor to *modicana*, Zeller, which is a delicate looking species with a shorter basal blotch, a less angulated fascia, and a far broader and differently shaped ocellus, and which has not yet been noticed in this country. It therefore becomes evident that *æmulana*, Schl., as already substituted by Mr. Doubleday in his list, is correct. I find also that the blackish varieties of this species are, in some collections, incorrectly named *parvulana*. Mr. Vaughan tells me that all the varieties fly together among mixed herbage, but appear to prefer swampy places.

Catoptria parvulana, Wilk.—As I have already said, dark specimens of *C. æmulana* are sometimes mistaken for this species. It may be distinguished from them by the fore-wings being much narrower at the base, and the costa more rounded, especially towards the tip. It has not the mottled appearance of *æmulana*, and seems constant in size and colour. Mr. Bond tells me that he takes it on the cliffs in the Isle of Wight, where *æmulana* does not seem to occur, and that he thinks it is attached to the dwarf thistle (*Cnicus acaulis*). This seems to be its only discovered locality, as it is quite unknown upon the continent. Wocke marks it unknown to him, and places it between *albersana* and *tenebrosana* (*nigricana*).

Catoptria cæcimaculana, Hüb.—This species seems to be common upon the continent. It surely cannot be scarce on the chalk hills of the south of England. If, as Wilkinson says, it occurs rather commonly there, I shall feel much obliged to any Entomologist residing near the chalk who will procure me a few specimens. Zeller says it occurs among *Ononis* in July.

Catoptria conterminana, H.-S.—Recorded and figured (uncoloured) in the Entom. Annual for 1864, but not described. A short description may be useful.

Head, thorax, and palpi pale drab, antennæ brown. The fore-wings of a smooth, delicate fawn colour; basal patch darker, becoming pale brown at its angulated outer edge. Beyond this is an ill-defined pale blotch on the dorsal margin, followed by a darker cloud, which bounds the ocellus. The latter, a little paler than the ground colour, encloses two or three indistinct black lines. The usual costal streaks are hardly visible. Hind-wings pale grey.

Zeller says "Larva in seed-heads of *Lactuca sativa*, often very "injurious, difficult to rear." M. Jourdheuille says "In flowers of "*Lactuca virosa* and *scariola*, garden lettuce, &c."

It flies in July and August.

Catoptria expallidana, Haw.—Better known in Germany under the name of *ibiceana*, H.-S., Hein., but Haworth's name has priority, and is adopted by Dr. Wocke in his Catalogue. Prof. Zeller tells me that his *obumbratana*, described from a specimen from Livonia, is also this species.

(To be continued).

ON TWO NEW GENERA OF COLYDIIDÆ FROM NEW ZEALAND.

BY T. VERNON WOLLASTON, M.A., F.L.S.

FAM. COLYDIIDÆ.

Genus TARPHIOMIMETES, nov. gen.

Corpus oblongum, convexum, rugosum, setulosum ac squamoso-subvariegatum, necnon plus minus nodulosum; capite in prothoracis excavatione valde profundâ usque ad oculos magnos prominentes nudos immerso; prothorace plus minus setoso-noduloso, angulis anticis valde porrectis ac plus minus acutis, ad latera plus minus subrecurvo-explicato necnon plus minus eroso; scutello distincto, rotundato; prosterno postice (inter coxas anticas) et mesosterno postice (inter coxas intermedias) in lobos brevissimos productis; metasterno postice in medio (inter coxas posticas) breviter et minute bifido, lobum triangularem segmenti abdominalis primi recipiente; abdomine e segmentis 5 composito, segmentis (1^{mo} sub-longiore excepto) longitudine sub-æqualibus. Antennæ prothorace paulo longiores, distantes, ante oculos sub margine capitis insertæ, 11-articulatæ, articulis 1^{mo} et 2^{do} crassis, illo elongato, hoc brevior sub-rotundato, 3^{to} elongato gracili, 4^{to} ad 8^{vm} gradatim magis rotundatis.

reliquis clavam magnam abruptam elongato-ovalem 3-articulatam efficientibus. Labrum sub-quadratum, antice integrum ciliatum. Mandibulæ sub-triangulares, apice incurvæ acutissimæ bifidæ, intus in medio profunde emarginatæ et membranâ breviter ciliatâ repletæ. Maxillæ bilobæ, lobis longitudine sub-æqualibus et dense pubescentibus; externo lato, brevi, apicem versus valde dilatato; interno angustiore, recto, inarmato. Palpi maxillares articulo 1^{mo} curvato, 2^{do} majore crassiore sub-clavato, 3^{tio} huic paulo brevior sub-poculiformi, ultimo elongato sub-fusiformi; labiales articulo 1^{mo} brevi, 2^{do} paulo majore, ultimo crassiore fusiformi-ovali. Mentum sub-quadratum, corneum. Pedes omnes ad basin anguste (intermedii etiam angustissime) separati; tibiis gracilibus, apice haud calcaratis; tarsis 4-articulatis, elongatis, filiformibus, articulis 1^{mo}, 2^{do}, et 3^{tio} angustis sub-æqualibus subtus leviter oblique productis, ultimo elongato unguiculis simplicibus munito.

A 'Tarphius' et 'Mimetes,' imitator.

In their sub-approximated coxæ, conspicuous scutellum, and their oblong, setose, and more or less scaly, nodulose bodies, the three very peculiar insects for which the present genus and the following one have been proposed, are very closely related to *Endophlæus*, from which, however, they recede, *inter alia*, in possessing a much more abrupt and distinctly 3-articulated club (the club in *Endophlæus* having the basal joint so much smaller than the second and third joints as to be scarcely more than *bi*-articulate); and their inner maxillary lobe, also, appears to be unarmed. *Inter se* they mainly differ in the structure of their prothorax, tibiæ, and feet; in *Tarphiomimus* the *first* being much more deeply indented, or scooped-out, laterally, at regular intervals, the *second* being (instead of slender and simple) thick and asperated, and the *third* having their basal joints much increased in width, and very much more produced (somewhat after the manner which we observe in a few of the Maderian *Tarphii*) on the under-side. The surface also in *Tarphiomimus* is more nodulose, as well as more densely clothed with mud-like scales; the elytra are minutely divaricated at their tip; and the abdomen beneath is extremely flattened.

Judging from the two exponents now before me, the nodules in *Tarphiomimetes* seem, as in the *Tarphii*, to be in some species obsolete; in which case they are represented by small and obscure patches of rather paler pubescence; and, as in the latter genus, the edges of the prothorax are greatly modified, specifically, as to their degree of expansion. The excessive dissimilarity of these particular examples inclines me to suspect that the group will probably be found to be a very extensive one in New Zealand, where it may perhaps occupy a position somewhat analogous to that which has been acquired by *Tarphius* in the Madeiran and Canarian archipelagos. *Primâ facie*,

indeed, it has very much in common with *Tarphius*; nevertheless, apart from every other discrepancy, its *tri*-articulated club, conspicuous scutellum, and sub-approximated coxæ, remove it into a different division of the family, and more into the vicinity of *Endophlæus*.

TARPHIOMIMETES LAWSONI, *n. sp.*

T. oblonga, convexa, nigro-picea sed in elytris (præsertim antice) dilutior, setulis brevibus sub-erectis fulvo-cinereis ubique obsita, aliisque demissis in interstitiis elytrorum alternis longitudinaliter obsolete multimaculata; prothorace (elytris sensim angustiore) antice angustato necnon ad latera oblique recto et obsolete serrato (angulis anticis porrectis acutissimis), sed utrinque ante basin excavato (angulis ipsissimis posticis acutiusculis), asperato-granulato, in medio (præsertim in disco) late canaliculato et utrinque obsolete inæquali; elytris (subter squamis) grosse transversim sub-rugulosis et longitudinaliter subpunctato-tuberculatis; antennis pedibusque gracilibus, rufo-ferrugineis, clavâ tarsisque (elongatis) versus apicem nigrescentioribus. Long. corp. lin. vix 2.

Habitat Novam Zealandiam; in Auckland collegit Dom. Lawson, cujus in honorem nomen triviale dedi.

I have much pleasure in dedicating this species to its captor, from whose researches in the Auckland district it seems probable (as I have been informed by Dr. Sharp) that we shall ere long possess some definite information concerning many of the most interesting of the Micro-Coleoptera of New Zealand. It may easily be known from the *T. viridipicta* by its uniformly brownish hue (the head and prothorax, however, having a darker tinge than the elytra) and almost *un-nodose* surface, the elytra, nevertheless, being very obscurely dappled with small and indistinct patches of paler scales (or decumbent setæ) down their alternate interstices. Its prothorax (which has a wide central channel) is considerably narrowed in front (where the angles are very acute and porrect), the anterior portion of the edges being straightened (though oblique); but the basal region is scooped out suddenly in front of either posterior angle. Its feet are very long and slender, with the apical part of the terminal joint darkened.

TARPHIOMIMETES VIRIDIPICTA, *n. sp.*

T. oblonga, convexa, picea sed in elytris læte viridi-picta, setulis brevibus crassis sub-erectis fulvo-cinereis, fulvescentibus et nigris dense ornata; prothorace (elytris paululum angustiore) sub-quadrato sed ad latera valde inæquali (scilicet in medio profunde eroso, necnon versus basin obsolete sinuato et versus apicem obsolete serrato), angulis anticis por-

rectis acutis, posticis acutiuscule extantibus, ubique nodulis setosis plurimis instructo; elytris nodulis plurimis (circa 10, utrinque) magnis sub-calvis viridescentibus ornatis, et hinc inde (præsertim versus latera et in medio) squamis nigris submaculato-decoratis, aliisque fulvescentibus adpersis, suturâ depressiore et magis ferrugineâ; antennis pedibusque gracilibus, rufo-ferrugineis, clavâ tibiisque ad basin necnon in annulo centrali nigrescentioribus. Long. corp. lin. $1\frac{3}{4}$.

Habitat in Novâ Zealandiâ, ab Auckland a Dom. Lawson missa.

The beautiful and very extraordinary *green* nodules with which the elytra of this species are decorated, added to its confusedly ornate surface—which is besprinkled with fulvescent, brownish, and (on the elytra) deep black setæ,—will suffice readily to distinguish it. Apart from the irregularity of the expanded edges, its prothorax is somewhat *quadrate* (being, if anything, less narrowed before than posteriorly; but its sides are deeply excavated, or scooped out, in the centre, and they are likewise either undulated or serrated both in front of and behind the emargination. Its prothorax also is crowded with tufts of short bristles, which seem to mark the presence of small and ill-defined humps, or nodes, beneath.

Genus TARPHIOMIMUS, *nov. gen.*

Corpus et cætera fere ut in *Tarphiomimete*, sed illud magis noduloso-rugosum et etiam densius sublutoso-squamosum, necnon in limbo grossius profundiusque eroso-indentatum; prothorace sub-lunulato, sed ad latera valde profunde 3-inciso, partibus inter fissuras lobiformibus ac minute irregulariter sub-tripartitis; abdomine subtus valde deplanato; tibiis crassioribus ac subter squamis grosse muricatis, ad apicem externum oblique truncatis; tarsorumque articulo 1^{mo} multo majore crassiore, subtus magis producto et magis piloso.

[OBS.—Gen. *Endophlæo* valde affinis, sed antennarum articulo 3^{tio} longiore clavâque majore, multo magis abrupto, et distinctissime 3-articulato; corpore in limbo, præsertim prothorace, multo profundius indentato-eroso; elytris ad apicem singulatim divaricatis; tibiis grosse muricatis; tarsorumque articulo 1^{mo} multo majore crassiore, subtus scilicet magis producto. A *Tarphio* discedit, inter alia, clavâ 3-, nec 2-articulatâ, scutello conspicuo, coxisque multo magis approximatis.]

A '*Tarphius*' et '*Mimus*,' imitator.

Although so closely allied to *Endophlæus*, the type of this genus is, in some respects, one of the most extraordinary insects I have ever examined, the *laterally indented* structure of the prothorax, which is so strongly indicated in that group, and in *Tarphiomimetes*, being here exaggerated to such a marvellous extent, as to cause the prothorax to be cleft into *four separate divisions* (or lobes) on either side; each lobe, except the hindmost one, being itself obtusely bifid, or even

trifid, at the tip (a peculiarity, however, which is apt to be, at first sight, less conspicuous, on account of the deep fissures or cavities being more or less filled in with the coarse mud-like scales with which the whole body is densely clothed). It being also much rounded off posteriorly, and greatly emarginate in front, the shape of the entire prothorax is almost *lunate*; and this, added to the largely developed nodules with which its elytra (and, to a less extent, even its anterior segments) are furnished, and its thick, squamose, asperated femora and tibiæ, gives the insect a most remarkable appearance, somewhat analogous to that of the *Tarphius explicatus* of Madeira, or of the *T. deformis* of Teneriffe.

TARPHIOMIMUS INDENTATUS, *n. sp.*

T. oblongus, in medio gibboso-convexus sed in limbo indentato-explanatus, valde noduloso-inæqualis, squamis albido-brunneis et brunneis densissime subvariegato-tectus; capite (antice lato) granulato, et tuberculis binis majoribus frontalibus instructo; prothorace sub-lunulato (scilicet antice profunde emarginato et postice rotundato), tamen ad utrumque latus valde profunde 3-inciso, partibus 4 intermediis lobiformibus necnon (posteriori excepto) ad apicem plus minus obtuse et obsolete bi- aut etiam tri-partitis, in disco tuberculis (plerumque in seriebus duabus positis) aucto; elytris ad apicem singulatim divaricatis, ubique valde nodosis (nodis versus suturam, præsertim duobus pone medium necnon juxta scutellum, altioribus); femoribus tibiisque crassis, muricatis, dense squamosis; antennis (clavâ obscuriore exceptâ) tarsisque clare rufo-ferrugineis.

Long. corp. lin. $1\frac{1}{2}$ – $2\frac{1}{4}$.

Habitat Auckland Novæ Zealandiæ; collegit Dom. Lawson.

Teignmouth: May, 1872.

DESCRIPTION OF A NEW SPECIES OF *CHARAXES* FROM AFRICA

BY HERBERT DRUCE, F.L.S.

CHARAXES NOBILIS, n. s.

♂. Upper-side: black, crossed by a broad creamy-white band, commencing at the end of the cell of the fore-wing, and terminating at the abdominal margin of the hind-wing; a white spot near the apex of the fore-wing, and an orange spot at the anal angle; hind-wing with two tails.

Under-side: fore-wing black, crossed by a creamy-white band from the cell to the inner margin; a silvery-white mark at the end of cell,

close to the costal margin, with an oblique band of white at the apex; four white spots in the cell, and two large orange spots near the posterior margin.

Hind-wing silvery-white, crossed by two black bands, the first near the base, the second beyond the middle; outer margin broadly black, with a row of silvery-white spots; a large orange spot at the anal angle.

Hab. Old Calabar.

Exp. $3\frac{3}{4}$ -inch.

Coll. H. W. Bates.

1, Circus Road, St. John's Wood: *May*, 1873.

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA AND SPECIES (No. 8).

BY F. BATES.

The following two species of *Diaperis* differ considerably from the European species in the form of the prosternum. In the latter it is strongly and acutely produced and compressed before the coxæ, and is prominent and sub-horizontal, or very gradually declivous, behind the coxæ; in the former it is abruptly convex or elevated from the anterior margin, and is more (*Lewisi*) or less (*sanguineipennis*) abruptly declivous—and but little produced—behind.

DIAPERIS LEWISI, *sp. n.*

Form and punctuation as in *D. boleti*; the bands, &c., on the elytra of a bright red; the basal band is prolonged behind, at the margin of the elytron, and is of nearly equal width throughout, or but slightly contracted just before the suture; the dorsal band is wider, slightly arched, and very strongly toothed at the margins; the apical mark is much larger than in *D. boleti*, and extends some distance up the elytron, where it widens out, the upper edge being twice notched, the inner notch the largest and deepest; as in *D. boleti*, these bands do not reach the suture, which is black throughout; the joints of the antennæ are less compact than in *D. boleti*, more wedge-shaped, appearing coarsely serrate within.

Length, $3\frac{1}{2}$ lin.; *width of elytra*, 2 lin.

Hab.: Japan; three examples.

Besides the radical difference in the form of the prosternum, this species is also very distinct by the differently formed and coloured bands on the elytra, which show no disposition to vary in the three examples before me. The species has the usual blunt tubercle on the disc of each elytron, which is one of the characteristics of the genus.

DIAPERIS SANGUINEIPENNIS, *sp. n.*

In this species, the form is slightly more parallel, the punctuation a little coarser; the prothorax is made more unequal by numerous shallow foveæ; the

elytra are of a more or less sanguine red, and have an interrupted, transverse, dorsal, black band, consisting of four large, oblong spots, those at the margin and suture being largest; before the apex is another band, irregularly arched, and strongly indented; the suture, and the extreme margin, as far as the first dorsal band, are black.

Length, $3\frac{1}{2}$ lin.; width of elytra, 2 lin.

Hab.: Ceylon; two examples.

APSIDA (Dej.), Lacordaire, Gen. d. Col., v, p. 309, *note*.

Mentum trapezoidal, the disc more or less strongly convex; last joint of labial palpi ovoid, more or less attenuate, and narrowly truncated, at apex, and of the maxillary palpi triangular, with the apical angle more or less strongly produced; outer five joints of antennæ expanded; epistoma broadly and slightly sinuously truncated in front nearly on a level with the insertion of the antennæ; the sutural line distinct throughout; labrum broad, narrowly emarginate in front, the angles rounded, the membranous attachment broadly exposed; eyes rather small, narrow, moderately prominent, not obliquely prolonged on the front, distant both above and beneath, emarginate in front; antennary orbits wide, rounded at the sides; prothorax transverse, gradually—and but slightly curvedly—narrowed from base to apex; apex more or less deeply arcuate-emarginate; median basal lobe rather broad and subtruncate behind; the lateral margins more or less (but never strongly) thickened and slightly channelled within; scutellum large, curvilinearly triangular; elytra strongly convex—almost gibbous—a little before the middle (*chrysomelina*), or simply and regularly convex (*Belti*), more or less gradually declivous behind; epipleural fold rather broad, more or less abruptly terminating at, or near to, the fourth ventral suture; prosternum very short, more or less compressed and convex in front, the process broad, robust, sometimes a little declivous behind, end broadly rounded; mesosternum short, vertical in front, and broadly, and more or less deeply and angularly emarginate, the upper face plane, smooth, or with an oblique impression at each side; metasternum transversely concave behind (the concavity corresponding with the convexity on the back), or slightly convex; intercoxal process broad, more or less rapidly narrowed to the apex; legs moderate, femora compressed, moderately claviform; tibiæ slightly bowed, gradually thickened outwardly; 1st joint of hind tarsi moderately elongate; body shortly oval, elongate oval, or ovate.

This genus—very briefly characterized by Lacordaire—may at once be distinguished from *Hemicera* by its 5-jointed antennal club; its smaller, narrower eyes, not obliquely produced on the front or approximate above; its wider antennary orbits; its prosternum less strongly compressed before the coxæ, &c.

I am not at all certain that the species I have described as *chrysomelina* is the same as that mentioned by Lacordaire.

APSIDA CHRYSOMELINA, *sp. n.*

Short-oval, dark bronzed-green, shining; head minutely and sparsely punctulate; prothorax impunctate, gradually narrowed from base, a little incurved at the apex, which is rather strongly arcuate-emarginate; scutellum shining black, impunctate; elytra strongly convex—almost gibbous—before the middle, each with

eight rows (besides a short scutellar one) of fine punctures, obsolete at apex, and having six stripes of dark metallic-green, alternating with six stripes of coppery-red; ordinarily, the 2nd and 6th green stripes are united near the apex, and within these the 3rd and 5th; the 4th the shortest, and enclosed by the others; there are, however, individual variations from this, as might be expected, but in all examples one clearly sees at least six more or less distinct stripes of each colour; the green stripes always tone down into golden- or brassy-green, at one or other of their margins; intervals not visibly punctured; under-side, legs, and antennæ deep shining black; prosternum compressed in front, convex from apex to base, the process somewhat abruptly declivous behind, and having, on its upper face, an impressed curved line; mesosternum plane, smooth, broadly—but not deeply—and angularly notched in front; metasternum transversely concave behind; intercoxal process wide, broadly triangular, and pointed at apex. Length, $4\frac{1}{2}$ — $4\frac{3}{4}$ lin.; width of elytra, $2\frac{1}{2}$ — $2\frac{3}{4}$ lin.

Hab.: Chontales, Nicaragua; four examples.

APSIDA BELTI, *sp. n.*

Short-oval, black, shining; smaller than the preceding, the head and prothorax deep shining black; the elytra regularly convex, the rows of punctures rounder, and more or less obsolete at the sides, as well as at apex; the metallic-green and coppery-red stripes—except the two sutural ones—are irregularly confluent, forming a pattern of irregular, usually elongate, green spaces enclosed by coppery-red, or coppery-red spaces enclosed by green; the inner edge of the green—when it forms the enclosing colour—deepens into cyaneous, whilst the outer edge pales into golden-green; the prosternum is less compressed in front, less convex, the process not declivous behind, and is longitudinally channelled at each side; the mesosternum is narrower, more deeply notched in front, the upper face obliquely channelled at each side; the metasternum is a little convex; the intercoxal process is more curvedly and more gradually narrowed to the apex, which is narrowly rounded.

Length, $3\frac{3}{4}$ lin.; width of elytra, $2\frac{1}{2}$ lin.

Hab.: Chontales; three examples.

APSIDA PURPUREOMICANS, *sp. n.*

Short-ovate; head, prothorax, and scutellum deep black, very glossy; elytra of a beautiful metallic-purple, with dark green reflections; head very finely, and not closely, punctured, finely rugulose behind; prothorax impunctate, more convex, and more strongly and curvedly narrowed from the base than in those preceding; elytra regularly convex, each with eight rows of fine, elongate punctures, almost obsolete at the sides and base, apex smooth; intervals impunctate; pro-, meso- and metasterna as in *A. Belti*, but the longitudinal grooves on each side of the prosternal process are much more feeble.

Length, $3\frac{1}{2}$ lin.; width of elytra, 2 lin.

Hab.: New Granada; a single example.

APSIDA ÆNEOMICANS, *sp. n.*

Ovate, metallic bronzed green with a castaneous tinge, elytra paler, less æneous; head and prothorax minutely, and not closely, punctulate; sides of prothorax feebly rounded; elytra moderately convex, the greatest convexity before the middle, very gradually declivous behind, faintly seriate-punctate, the punctures almost obsolete

at the sides and base, apex smooth; under-side and legs shining castaneous, with metallic-green reflections; prosternum convex in front, the process feebly longitudinally grooved at each side, not declivous behind; mesosternum very short, convex, smooth, the frontal emargination shallow, almost lunate; metasternum faintly transversely concave behind; intercoxal process pointed at apex.

Length, 3 lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: Mexico; one example.

APSIDA BOUCARDI, *sp. n.*

Elongate-oval, shining testaceous, the prothorax sometimes with a tinge of reddish-brown, or varied with fuscous on the disc; the elytra usually with the suture, and one or two dorsal stripes, of a dark brown; head and prothorax apparently impunctate, sides of the latter very feebly rounded; elytra convex, the greatest convexity before the middle, finely seriate-punctate, obsoletely so at base and sides, apex smooth; under-side shining testaceous, varied with brownish, or entirely brownish, the legs in all cases a little paler; outer joints of antennæ black; prosternum as in *æneomicans*; mesosternum rather more deeply notched than in that species, slightly convex, usually plane, sometimes with an angular impression at each side; metasternum faintly transversely concave behind; intercoxal process pointed at apex.

Length, $3\frac{1}{4}$ — $3\frac{1}{2}$ lin.; width of elytra, $1\frac{3}{8}$ — $1\frac{1}{2}$ lin.

Hab.: Mexico; three examples.

ERRATA IN No. 7.

Page 259, line 13 from top, *for* "with" *read* "into."

„ 261, lines 19 and 20 from bottom, *dele* from "by" to "behind" inclusively.

„ 262, line 12 from top, add "broadly" before last word.

„ „ „ 30 „ „ , *for* "processes" *read* "process."

„ „ „ 31 „ „ , „ "plain" „ "plane."

15, Northampton Square, Leicester:

March, 1873.

Note on the Carabideous genus Maraga, Walker.—Baron Chaudoir, in his recently published monograph of the genus *Orthogonius* and its allies, expresses surprise at the genus *Maraga* being united by von Harold and Gemminger with *Orthogonius*. *Maraga* is, however, undoubtedly identical with *Orthogonius*, and Baron Chaudoir's surprise is probably to be accounted for by the fact of the characters given by Mr. Walker being in part erroneous; as the palpi are not "sub-securiform," and the posterior femora are not "bidentate" in the type of *M. planigera* before me. This species is the smallest (9 mill.) in the Museum collection; the head is finely (but distinctly) and not very thickly punctured, with a distinct transverse impressed line between the antennæ. The thorax is transverse, slightly narrower in front than behind, the anterior margin nearly straight, the sides evenly rounded, the anterior angles much rounded, the posterior angles bluntly rounded; the upper

surface is delicately and moderately thickly punctured; the lateral margins are depressed, very slightly in front, broadly behind, and are very delicately punctured. The elytra are rather deeply striated, the striæ appearing impunctate; the interstices are all nearly of equal width, moderately convex, and very finely and moderately thickly punctured; the apex of each elytron is *very* slightly emarginate.

There is another very small species of *Orthogonius* in the Museum (10 mill.) marked "S. India," at present unnamed, with which *O. (M.) planigera* must not be confounded. This has the head and thorax (especially the margins) much more strongly and thickly punctured, and the apex of the elytron presents no trace of emargination.—CHAS. O. WATERHOUSE, British Museum: April 3rd, 1873.

Notes on certain British Curculionidæ.—ORCHESTES SEMIRUFUS, Gyll. Mr. Samuel Stevens has for some years had (separated as a possibly distinct species) two examples of an *Orchestes* which I think are without doubt to be attributed to Gyllenhal's insect above named, and which were taken by himself at Weybridge. From the review of M. H. Brisout's monograph of the genus in Ent. Mo. Mag. ii, p. 225, it is apparently most probable that the grounds for the reference of this insect to Britain by M. Brisout were incorrect; and, although its occurrence here is now placed beyond doubt, it cannot, I think, with propriety be added to our list as a good species. In De Marseul's last European Catalogue it is separated from *scutellaris* by five other species; but, from an examination of Mr. Stevens's specimens, I am convinced that Thomson is right (Skand. Col. vii, p. 286) in considering *semirufus* as nothing but a form of *scutellaris*, which seems to be very variable in colour; *suturalis*, Zett., *pubescens*, Schön., and *pilosus*, Gyll., being also founded on different shades of the same species. Mr. Stevens's insects (one of which is very small; the other of normal size) differ from the ordinary British form of *scutellaris* in having the head and thorax pitchy-black, the legs also being darker than usual, approaching Thomson's "*var. d.*"

ORCHESTES MELANOCEPHALUS, Ol.—I am unable to see any ground for separating this insect specifically from *O. alni*, Linn. M. Brisout can only suggest differences of colour; and I not only fail to detect any other but his superficial characters, but I find such an extreme difference in the degree of maculation in *O. alni*, that it seems hardly worth while to allow the mere absence of spots to confer specific rank. Similar, but much greater differences in *O. ilicis* (especially a form of which I have a British example, with almost black legs and tarsi) are recognised as constituting mere colour varieties of that species.

CEUTHORHYNCHIDEUS CHEVROLATI, Brisout.—Gyllenhal's "*Rhynchænus troglodytes*, Var. *d.* jam pluries lecta in plantis oleraceis; elegans, lineis thoracis et lituris elytrorum e squamulis niveis, fere argenteis, compositis" (Ins. Succ. iv, p. 597), seems clearly to be this insect.

"CEUTHORHYNCHUS CRASSIDENTATUS, Marshall."—This name still appears on our lists, but no one seems to have anything representing it, or to know what it is supposed to be, and no description of it has been published. Mr. Marshall (of Leicester), to whom application has been made, appears to know nothing of it. Can any one throw any light on the subject?—E. C. RYE, Park Field, Putney, S.W.: May, 1873.

Occurrence of Cleonus nebulosus near London.—On Good Friday last, I found a specimen of this handsome insect, in splendid condition, on Shirley Heath. The brick-red suture and patches of scales of the beetle harmonized well with the red flint shingle and the heath among which it lay concealed.—ALBERT MÜLLER, South Norwood: April, 1873.

Pediacus near London.—I have several times lately had the pleasure of taking *Pediacus dermestoides* in the neighbourhood of Loughton, where I believe it has not occurred for some time. Unfortunately, my first six were devoured by a mouse during the night, but I have since taken five more; and my friends Messrs. G. C. Champion and J. G. Marsh, who accompanied me on my last visit, both succeeded in obtaining specimens.—JAMES S. ALLIN, 20, Beaumont Square, Mile End Road: 13th May, 1873.

Occurrence in Britain of Thalpochares paula, Hübn.—Some time ago, at the request of the Rev. Henry Burney, I forwarded a pretty little *Noctua* from his collection to Professor Zeller for identification. He returned it named *Thalpochares paula*, Hübn.

This specimen had been obtained by Mr. Burney from the collection of the late Mr. Carter, of Manchester, and no particulars of its origin are now obtainable, but, fortunately, Mr. Burney has another specimen unset, the British nativity of which there seems no reason to doubt. He tells me, that if his recollection serve him aright, it was picked out from an old collection made years ago by a boy at school, and its rarity never suspected, until he (Mr. Burney) looked over the insects and discovered the little stranger, which he placed in his own cabinet under another (erroneous) name. The boy in question was in the habit of collecting during his holidays on the south coast, and, as he had no opportunity of getting insects from abroad, or from dealers, there can, I think, be little question about the genuineness of this specimen.

It now appears that another specimen has been taken in the Isle of Wight, by Mr. E. G. Moore, of Stamford Hill, London, and recorded, and exhibited at a meeting of the Haggerstone Entomological Society, under the name of *Micra parva*. Mr. Moore writes:—

"I took it in an open cornfield close to the cliffs, at Freshwater. My friend, Mr. Woodage, and I were in search of '*Davisellus*' at the time, and at first I thought it was a *Tortrix*, and took little notice of it, but put it along with my unset insects. A friend looking over them when I returned home pointed this one out to me, and I relaxed and set it, and exhibited it at a meeting of our Society as *parva*."*

This specimen I have had an opportunity of examining, and find that it is unquestionably *T. paula*.

This pretty species is from 7 to 9 lines in expanse of wing. Head and thorax white; fore-wings white, more or less suffused with pale fuscous, especially beyond the first fascia, which is oblique, straight, and ill defined, and of a reddish fuscous. The second fascia is a mere brown line, once angulated, and before it is a distinct

* May I venture to suggest that if those Entomologists who "take little notice" of *Tortrices* taken in such rich localities on the south coast, will send them—set or unset—to the writer, they will confer a great favor on him, and possibly help to increase our limited knowledge of the group.—G. C. B.

crescent-shaped upright white streak on the inner margin, occasionally becoming a fascia and reaching the costa. Hind-wings white, with fuscous margins. It belongs to the genus *Micra* of Guenée, and of Doubleday's List. Professor Zeller tells me it is common in Germany, the larva feeding on *Gnaphalium arenarium*. As this is not a British plant, some allied species is doubtless substituted for it in this country.

Micra parva has both the fasciæ straight and oblique, and has darker hind-wings, but very little is known about it in this country. Mr. Doubleday believes that Dr. Battersby's supposed specimens were varieties of *ostrina* without the rosy colour, and it seems probable that Mr. Crotch's specimens taken at Weston-super-Mare were the same, while one which was sold at a high price at the sale of a large London collection two or three years ago, proves to be *rosina*, a native of southern Russia. This mistake must be attributed to some too ingenious dealer, since there is not a shadow of reason to suppose that *rosina* has ever occurred in this country.—CHAS. G. BARRETT, Norwich: 16th April, 1873.

Notes on Vanessa Antiopa in Holland.—Mr. Snellen van Vollenhoven called attention to the appearance of *Vanessa Antiopa*, L., in extraordinary numbers during the previous summer, and mentioned that four specimens were taken on the Morschweg, near Leyden, and many others observed there. Messrs. Brants and Snellen also bore testimony that these butterflies, which are usually extremely scarce, had occurred here and there in other parts of the country. Mr. Lewe, of Middelstum, noticed that some specimens had been seen and taken in the wood of Cleves. The President (Mr. Albarde) also announced that he had taken three specimens in his garden at Breda.—[Extracted from Report of Dutch Entom. Society, Meeting 28th December, 1872.]

Perception of Gonepteryx rhamni at fault.—On Easter Monday a little incident occurred, which may be worth mentioning in these days, when at last some systematic attention begins to be paid to the faculties of the lower animals. While plodding along a dusty highroad in this neighbourhood, a ♂ *G. rhamni* rapidly passed me on the wing. A few yards further on, it suddenly arrested its straight flight and began to wheel round an object lying in the dust, which, on coming up, I found to be a crumpled-up ball of rose-coloured tissue paper. My arrival frightened the butterfly and it continued its headlong career, but, scarcely had I left the spot, when doubling on its track, it rushed back and repeated the circling round the paper, descending repeatedly to within about an inch of it, but without actually settling. This time I watched its proceedings from a convenient distance without disturbing it. After a few minutes' bird's-eye view, the insect seemed to have made up its mind, that there are such things in the world as rose-coloured balls without the perfume and nectar of the rose; so away it went and so did I. But imagine my astonishment to see it fly steadily a few hundred yards ahead, and then suddenly return to the ball, over which it again performed similar aerial evolutions, till a band of noisy excursionists made the place too hot for it to stay, much to my inward regret, as I had made up my mind to wait and see how long the deception would last.—ALBERT MÜLLER, South Norwood, S.E.: April 17th, 1873.

Black variety of Dianthæcia conspersa in Morayshire.—Last July, I went down to the coast of the Bay of Findhorn, about two miles from Forres, to collect some seeds of *Silene inflata*.

The capsules yielded me many small larvæ, which, later on, became yellow, with reddish-brown diagonal stripes. These I mistook for the larvæ of *D. cucubali*. A few days ago, one of my pupæ yielded me *D. conspersa*, a species new to this county. The colour is, however, most extraordinary, being nearly black, the orbicular stigma with a central dark spot, and a conspicuous white blotch beneath the stigmata.

Not having a specimen of *D. Barrettii*, I am unable to compare my insect with that supposed species; but it will be interesting should it prove identical with the celebrated Irish insect.—GEO. NORMAN, Cluny Hill, Forres, N.B.: 14th April, 1873.

Note on the larva of Nematus ribesii.—About the end of July, 1872, I collected a batch of the (apparently) too well known larvæ of *Nematus ribesii*, and a day or two afterwards they all buried themselves in the soil provided for their use. Towards the end of August, five or six of the sawflies made their appearance, and along with them were two specimens of another and quite distinct species of *Nematus*, the name of which I cannot satisfactorily determine. I write this note in order to draw the attention of those who may have opportunities of extensively rearing these destructive larvæ to this fact, so that the difference, if any, between the two species may be discovered. Snellen van Vollenhoven has reared, from a lot of these larvæ, *Nematus albipennis*, Hartig, and consequently considers it to be a mere variety of *ribesii*; but the difference between the species in question and it are so great as to preclude such a supposition, and it does not agree with the descriptions of the other *Nemati* known to feed on the gooseberry.

I may here mention that many, if not all, sawflies, after they have left the pupa state, and when their limbs have become firm and dry, evacuate a dirty greenish-coloured liquid.—P. CAMERON, Jun., 136, West Graham Street, Glasgow.

ENTOMOLOGICAL SOCIETY OF LONDON, 5th May, 1873.—H. T. STANTON, Esq., F.R.S., Vice-President, in the Chair.

The Marquis Doria, of Genoa, was elected a Foreign Member.

Mr. Higgins exhibited a specimen of a most remarkable moth, said to pertain to the Sphingidæ, and recently described by Mr. F. Moore as *Langia zeuzeroides*. It was from the Himalayas, and had been bred by Major Buckley from a larva feeding on wild apricot. He also exhibited a ♀ of *Goliathus albosignatus* (Kirki, Westwood) from the Limpopo, being, as he considered, the only known example of that sex.

Mr. McLachlan exhibited a coloured plate of Butterflies from Turkestan; this he had been requested to show to English Entomologists as a sample of the manner in which the forthcoming work on the Natural History of Turkestan is to be illustrated. The Entomological collections had been chiefly made by M. Alexis Fedtschenko during the years 1869—71. The work is to be published in Russian, with Latin diagnoses.

Mr. Bates alluded to an insect figured on the plate as *Colias Nastes*, var. *cocandica*. *C. Nastes* had hitherto only been found in Lapland (var. *Werdandi*), and in Labrador and Arctic America, and it was a striking instance of the manner in which some species inhabiting the Arctic Regions are found south in Alpine districts, though not in the intervening plains.

Mr. Müller alluded to the distribution of *Parnassius Apollo*, which he considered to exist only on the outside of the moraines left by ancient glaciers.

Mr. Müller read a note concerning an old Swiss Entomologist named Johann Samuel Clemens, who was said to have died in 1812, and to have left extensive collections and herbaria, and many MSS. on the Natural History of the Valais, none of which seem to have been published.

Mr. Stainton exhibited a cocoon found by Mr. Swinton on a wall at Kilburn; its surface was smooth and extremely hard, and it had an oval opening at one end. Mr. McLachlan considered it to be an ancient cocoon of *Cerura vinula*, altered in texture and surface in consequence of the larva having had to construct it on a wall instead of on a tree-trunk.

Dr. Sharp communicated a paper on the *Staphylinidæ* of Japan, almost entirely drawn up from materials collected by Mr. George Lewis. He described about 190 species, whereas, only 3 (or 4?) had been previously described from these islands.

The Rev. A. E. Eaton communicated notes on the *Ephemeridæ* by Dr. Hagen, supplementary to the Monograph on that family recently published, and compiled by Mr. Eaton from Dr. Hagen's letters.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

Revision of the BYTHOSCOPIDÆ, and descriptions of some species not hitherto recorded as British.

(continued from Vol. ix, p. 266).

In the volume of the Verhandlungen d. K. K. Zool.-bot. Gesell. in Wien for 1868, pp. 449—464, Dr. Fieber published a paper on this group, wherein he described all the comparatively but little known and new species, to which scarcely any alteration or addition is made in his list published last year. He divides the group into five genera, viz.: *Macropsis*, *Idiocerus*, *Bythoscopus*, *Pediopsis*, and *Agallia*, all of which are peculiar from their having a great breadth of head and exceedingly narrow crown, especially in the centre. In Vol ii of the Ent. Mo. Mag., pp. 102—105, 124—126, the Rev. T. A. Marshall described all the species then known to him, adding in his introduction, that more might be expected to occur; and, in confirmation of his idea, I have now the pleasure to submit the result of my investigations. All the species I describe are from purely local sources, and I would esteem it a great favor if any gentleman collecting in the north would oblige me with a sight of his captures.

Genus *MACROPSIS*, Lewis.

This genus is of very limited extent, even throughout Europe, as Fieber only enumerates 4 species, viz.: *M. microcephala*, H.-Sch., *M. prasina*, Fab., *M. lanio*, L., and *M. scutellaris*, Fieb., all of which are green-coloured. Two of these are British.

Species 1.—*MACROPSIS MICROCEPHALA*, H.-Sch.

Bythoscopus microcephalus, H.-Sch., D. I., 164, 8.

Batracomorphus irroratus, Lewis, Trans. Ent. Soc., Vol. i, p. 51, pl. 7, fig. 5 (1834).

Jassus punctulatus, Forel, Bull. Soc. Vaudoise, Vol. v, p. 253, t. 2 (1857).

Macropsis punctuosa, Kirschb., Cicad. 168, 2.

Above and beneath pale bluish-green.

Head: crown and pronotum generally finely black punctured, on either side next the base occasionally with a few fine black punctures. *Elytra* thickly and finely black punctured. Length $1\frac{1}{2}$ —2 lines.

Less than half the size of the next species. At present it seems doubtful to me whether it really belongs to this genus.

Very common on Mickleham Downs, in July, amongst *Helianthemum*. I have also taken it in other localities, but sparingly.

Species 2.—MACROPSIS LANIO, L.

Cicada lanio, L., S. N. 464, 5.

Jassus lanio, Fab., S. R. 86, 4 (1803).

Jassus brunneus, Fab., S. R. 87, 10 (1803).

Macropsis lanio, Marshall, Ent. Mo. Mag., Vol. ii, p. 102 (1865).

Above and beneath green.

Head: crown, pronotum, and scutellum pale or reddish-brown, or spotted or irrorated with reddish-brown. *Elytra* green, thickly and irregularly crenulate punctated between the nerves. Length $3\frac{1}{2}$ —4 lines.

The largest of the British species of this group, and common everywhere.

It is within the range of probability that *M. prasina*, Fab., may be found in this country, as Fieber's localities are of wide extent, for he gives Germany and Russia, and possibly the following diagnosis may be of use in leading to its recognition.

Leek-green. *Elytra* faintly punctured; the channel upon the scutellum horse-shoe shaped. Abdomen above, next the base, in both sexes red. Length $3\frac{1}{2}$ —4 lines. The crenulated punctures on the *elytra* are not so deep as in *M. lanio*, nor are they black as in *M. microcephala*.

Genus IDIOCERUS, Lewis.

One of the great distinctive peculiarities of this genus lies in the antennæ of the ♂ of nearly every species, and, without any other character, would be sufficient to stamp it as an *Idiocerus* as laid down by Lewis in the Transactions of the Entomological Society, viz.: at a greater or lesser distance from the apex of the antennæ there is an ovate, compressed, generally black plate, a figure of which may be seen in Curtis's B. E., pl. 733, fig. 4, and Burmeister's Gen. Ins., genus *Bythoscopus*, figs. 5 and 6. In some instances the species, from their similarity in color and markings, are extremely difficult to separate, and this has previously led to errors in identity, and it is possible that even this attempt of mine may not be without some faults. According to Fieber's Catalogue there were some 34 species known to him as European. Of these we possess 8, which are determinable.

Species 1.—*IDIOCERUS ADUSTUS*, H.-Sch.

Bythoscopus adustus, H.-Sch., D. I., 144, 9.

Idiocerus varius, Flor, Rhyn. Liv., Vol. ii, 166, 3; Marshall, Ent. Mo. Mag., Vol. ii, 103, 1; Kirschb. Cicad. 153, 2.

Idiocerus stigmatalis, Lewis, Trans. Ent. Soc., Vol. i, p. 48.

„ *adustus*, J. Sahlb., Nott. Fenn., part 12, 140, 1.

♂ pale yellow or orange-yellow; *Corium*, anterior margin flattened in the middle, on which are from 5 to 7 nodules.

Head pale yellow or orange-yellow. *Crown* in front, with a small black puncture near each eye, frequently wanting. *Face* pale yellow or orange-yellow. *Antennæ* with a black somewhat lanceolate plate a little before the apex.

Thorax: *pronotum* pale yellow, bone white or greenish-grey, with a broadish, pale brown longitudinal streak on each side of the centre, within the lateral margin sometimes blackish, near the anterior margin on each side of the centre are three irregularly shaped and placed black spots, or short streaks. *Scutellum* yellow, within the basal angles a black triangular patch frequently joined by a narrow streak across the anterior margin, these again are joined to a longitudinal central line terminating before the apex in a ring, so that, when viewed from the head, it is of an anchor-shaped form; across the middle of the disc is a transverse slightly curved channel, in which is generally a black puncture on either side of the centre.

Elytra: *clavus* testaceous, inner margin piceous, nerves brown; central nerve white next the apex, basal portion with a few minute granules on either side. *Corium* pale testaceous, anterior margin at the base orange-yellow, in the middle flattened out, on which are 5 to 7 nodules, within the margin of this portion is a broad longitudinal black streak, on which are 2 or 3 minute, round, orange-yellow spots placed at irregular intervals; longitudinal and transverse nerves—except at the base and apex—piceous or black, and with minute black granulations on the sides; apex of the corium next the anterior margin more or less broadly orange-yellow; membrane pale testaceous with a slight fuscous tinge; nerves blackish. *Wings* somewhat fuscous, darkest at the apex; nerves black. *Sternum* pale yellow or orange-yellow. *Legs* pale yellow or orange-yellow; *thighs* generally with a longitudinal black line on the outside; *tibiæ* at the base exteriorly with a black dash, which is frequently continued as a narrow line to the apex; apex more or less brown; *tarsi* yellow, apex of the joints brown. *Abdomen*, above black, sides and posterior margins of the segments narrowly pale yellow; beneath pale yellow, posterior margin of the first segment narrowly black; last genital segment black, generally with a pale yellowish spot or streak near the middle of the posterior margin; exterior processes dark brown or piceous, in shape somewhat resembling a single unburst bud of the honeysuckle; apex clothed with long, fine white hairs. ♀ differs chiefly from the ♂ in not having the anterior margin nodulose in the middle, nor the bright orange anterior margin and apical spot.

Length, 2½—3 lines.

Easily recognized from all other British species by the nodulose anterior margin of the ♂.

Common everywhere by beating willows, &c., from August to October.

Species 2.—*IDIOCERUS LITURATUS*, Fall.

Iassus lituratus, Fall., Hem. Suec. Cicad., 60, 2.

Bythoscopus lituratus, H.-Sch., D. I., 143, 13.

Idiocerus maculipennis, Curt., B. E., pl. 733 (text), No. 3.

Bythoscopus lineolatus and *dorsiger*, Lep. et Serv., Enc. Meth., Vol. x.

Idiocerus lituratus, Marshall, Ent. Mo. Mag., Vol. ii, 103, 2; Kirschb., Cicad., 154, 5; J. Sahlb., Not. Fenn., part 12, 141, 1.

Idiocerus Herrichii, Kirschb., Cicad., 152, 1.

♂ and ♀ pale yellowish or yellowish-brown; *corium*—anterior margin not flattened in the middle, and without nodules.

Head: *crown* more or less clear yellow or greenish-grey, in front with a round black spot near to each eye. *Face* yellow, pale testaceous or somewhat greenish-grey, next the clypeus not unfrequently orange-yellow. *Antennæ* yellow; apical plate black.

Thorax: *pronotum* yellowish or pale luteous, more or less clouded with fuscous; next the anterior margin are two or three irregular shaped black spots on each side of the centre. *Scutellum* similar in colour and markings to *I. populi*; the markings very variable. *Elytra*: *clavus* pale yellowish-brown, inner margin narrowly black; nerves brown, with minute granules along the sides, central nerve at the apex white, the colour extending for a little distance on to the disc, and forming a distinct oval patch. *Corium* pale yellowish-brown, anterior margin next the base more or less orange-yellow, in the middle with a black streak on the inside; nerves brown, sometimes almost black, thickly granulated, 1st inner longitudinal nerve with two short, white streaks, one immediately beyond the 1st transverse nerve, the other in a line with the apex of the clavus; 2nd longitudinal nerve, opposite to the last, also with a white streak. *Membrane*—nerves black; base of the membrane appendix with a short, longitudinal piceous streak. *Legs* yellow, sometimes with a brownish shade; *thighs*—1st pair with a black spot on the upper side, near the apex; 2nd and 3rd with a short, black, longitudinal streak on the inside, near the apex; *tibiæ*—on the outer margin with a short, black streak at the base, frequently continued to the apex; 2nd and 3rd pairs more or less black on the inside, next the inner margin; spines on the 3rd pair pale; *tarsi* yellowish or brownish, apex of the 3rd joint, sometimes the 2nd, darker; *claws* black.

Abdomen above, black, posterior margin of the segments on the sides narrowly clear yellow; beneath yellow; last genital segment black, exterior processes similar to those of *I. adustus*.

The ♀ differs only in having the nerves of the elytra of a clear brown colour.

Length, $2\frac{1}{4}$ — $2\frac{3}{4}$ lin.

When in repose, the insect appears to have an interrupted, irregular, transverse band below the apex of the clavus, partly caused by the abdomen shining through the elytra, and partly by the

dark nerves between the interruptions. The dark colour on the nerves is of very uneven width, and causes them to appear as if irregular in thickness.

Not uncommon throughout the south of England on sallows and poplars, at the end of July and August.

Species 3.—IDIOCERUS H-ALBUM, Fieb.

Idiocerus H-album, Fieb., Verhandl. d. k. k. zool.-bot. Gesell., 455, 11 (1868).

♂. *Elytra* pale brownish or fuscous-yellow; *corium*—nerves not coarsely granulated as in *I. lituratus*; first transverse nerve and the longitudinal nerves for a short distance on either side of it white, and forming an Γ shaped character.

Head pale yellow or greenish-yellow. *Crown* in front, with a pale brown spot near each eye. *Face* and *clypeus* yellow.

Thorax: *pronotum* more or less clouded with fuscous-grey, anterior margin somewhat broadly, lateral and posterior margins narrowly, and a central longitudinal line, yellow; near the anterior margin, and in a line with the inner margin of the eyes, a yellow spot. *Scutellum* yellow; near each basal angle a triangular, black spot, and in the middle, between these, a brown one; transverse channel almost straight, having a black puncture on each side of the middle attached to a short streak, and forming a double comma-shaped character, placed back to back. *Elytra*: *clavus* pale brownish or fuscous-yellow; nerves dark brown, apex of the central nerve white, sutural nerve, from the base in to a line with the apex of the scutellum, white, apex white. *Corium* pale brownish or fuscous-yellow, the colour becoming paler as it approaches the anterior margin; nerves brown, finely granulated around the areas adjoining the anterior margin; 1st transverse nerve, and the longitudinal nerves for a short distance on either side of it, white, and forming an Γ shaped character; 1st and 2nd longitudinal nerves, in a line with the apex of the clavus, with a short white streak. *Membrane* somewhat fuscous, nerves dark brown or blackish. *Sternum* yellow. *Legs* yellow; *tibiae*—3rd pair with a longitudinal dark brown or blackish streak on the inside, next the inner margin; *tarsi* yellow; *claws* black.

Abdomen above, black, sides broadly yellow; posterior margin of two or three of the basal segments narrowly yellow; beneath yellow; last genital segment black, with an irregular shaped yellow blotch on the sides; exterior processes pale yellowish-white, almost straight, apex emarginate.

♀ yellow, shining, with a bronzy reflection when at rest.

Head: *crown* yellow in front, with a black spot near each eye; between the spots, and extending to the frons, is a brown patch, blackish internally, separated by a narrow, yellow, central line. *Face* yellow, with a brown \subset -shaped character, extending from each eye to the centre, and surrounding the ocelli. *Antennae* yellow, 3rd, 4th, and 5th joints black, 3rd pale at the base.

Thorax: pronotum as in the ♂. Scutellum yellow, with a broad, brown, central streak, divided by a paler line, and a brown triangular spot near each basal angle. All the other characters as in the ♂. Length, ♂, 2; ♀, 2½ lines.

A much smaller species than *I. lituratus*, and at once distinguishable from it by the absence of the white blotch in the clavus, the coarse granulation, and the seeming transverse band.

This species was submitted to the late Dr. Fieber for determination, who returned it with the above name, and, although described by him in the Verhandlungen for 1868 as already quoted, by some strange oversight it is omitted from his Catalogue.

Three specimens (2 ♂ and 1 ♀) were taken by Mr. Douglas at the sallow pit, Lee, and George lane, Lewisham, in August.

Species 4.—IDIOCERUS TREMULÆ, Estl.

Cicada tremulæ, Estl., Handl., p. 129, t. 5, fig. 3 (1796).

Iassus tremulæ, Zett., Ins. Lap., 302, 3.

Idiocerus unifasciatus, Curt., B. E., 733, 6.

„ *tremulæ*, Flor, Rhyn. Liv., Vol. ii, 172, 6; Marshall, Ent. Mo. Mag., Vol. ii, 105, 5; Kirschb., Cicad., 157, 8; J. Sahlb., Not. Fenn. part 12, 146, 7 (1871).

♂ and ♀ white. *Antennæ* without the apical plate; *elytra* with a distinct, transverse, brown band beyond the middle.

Head: crown more or less brown, with a pale central line. *Face*—base more or less dark brown, divided by a pale central line, and with a white or greenish-white spot exterior to the ocelli; apex pale brown.

Thorax: pronotum white or greenish-white, with a large, somewhat ovate, dark brown patch near the anterior margin, on either side of the centre; sides, within the pale margin, brown. Scutellum pale, with three triangular, dark brown spots at the base; or brown, with a pale spot at the base, on each side of the centre. *Elytra*: clavus, between the inner margin and central nerve to a little distance before the apex, brown; base and apex of the inner nerve and a small portion of the disc, white; apex of the central nerve white, within which and the inner margin is a triangular white patch; between the central nerve and suture, white, as far as the apex of the former. *Corium* white, with a clear brown, transverse band extending across its entire breadth, its upper margin in a line with the central nerve of the clavus, and its lower margin in a line with the apex of the same; nerves white, except in passing through the band, where they are slightly darker in colour than the band itself. *Membrane* pale fuscous; nerves dark brown. *Legs* yellow; *thighs*—apex sometimes brownish; *tibiæ* on the inside, at the base of the inner margin, frequently dark brown; *tarsi* yellow; *claws* black.

Abdomen of the ♂ entirely yellow; last genital segment and external processes yellow, the latter clothed with long white hairs at the apex.

♀ brownish above, posterior margins of the segments darker.

Length, ♂ 2; ♀ 2½ lines.

Scarce. I have only seen about half a dozen examples taken by Mr. Douglas and myself on Bexley Road and Dartmouth Heath in August.

Species 5.—*IDIOCERUS LAMINATUS*, Flor.

Idiocerus laminatus, Flor, Rhyn. Liv., Vol ii, 171, 5; Marshall, Ent. Mo. Mag., Vol. ii, 104, 3; Kirschb., Cicad., 162, 21; J. Sahlb., Not. Fenn., part 12, 148, 9 (1871).

♂ pale brownish-yellow. *Antennæ* with an apical plate; *elytra* with a distinct, transverse, white band beyond the apex of the clavus.

Head: crown pale yellow, with a more or less distinct brown spot in front, near each eye. *Face* and *clypeus* yellow. *Antennæ*: plate elongate, lanceolate, black.

Thorax: *pronotum* fuscous-yellow. *Scutellum* similar in colour and markings to *I. populi*; markings very variable. *Elytra* pale brownish-yellow. *Clavus*—central nerve, at the apex, white, the colour extending for a little way upon the disc, and forming a distinct oval patch; inner marginal nerve, round the scutellar region, brown, between the central nerve and the apex black. *Corium* pale brownish-yellow, palest next the anterior margin, the latter brown, except at the base; longitudinal and transverse nerves, from the base to the apex of the clavus, brown, finely granulated on each side; between the apex of the clavus and the membrane the nerves are white; disc, across this portion, pale, and forming a somewhat irregular transverse band. *Membrane* brownish or pale fuscous; nerves dark brown. *Legs* yellow; *thighs* with a short longitudinal streak on the inside, near the apex; *tibiæ*—3rd pair narrowly brown at the apex; *tarsi* yellow; *claws* black.

Abdomen above, black, posterior margin of the segments on the sides narrowly yellow; beneath yellow; last genital segment black, exterior processes pale yellowish-white, the S-shaped margins blackish, apex clothed with long pale hairs.

♀ unknown to me.

Length, 2½ lines.

Apparently scarce, as I have only seen two male examples taken by Mr. Douglas on Dartford Heath in August.

Species 6.—*IDIOCERUS POPULI*, L.

Cicada populi, L., S. N., Vol. v, 463, 32.

Iassus margarita, Lep. et Serv., Enc. Meth., Vol. x, 612, 1.

„ *populi*, Fall., Hem. Suec. Cicad., 60, 3; Zett., Ins. Lapp. 301, 1.

Bythoscopus populi, H.-Sch., D. I., 143, 14.

Idiocerus populi, Flor, Rhyn. Liv., Vol. ii, 176, 5; Marshall, Ent. Mo. Mag., Vol. ii, 104, 4; Kirschb., Cicad., 163, 24; J. Sahlb., Not. Fenn., part 12, 149, 10 (1871).

Idiocerus sulphureus, *effulgens*, and *æneus*, Curt., B. E., 733, Nos. 4, 5, and 7.

♂ and ♀ yellow, glassy, generally with a reddish-brown tinge. *An-*

tennæ with an apical plate; *scutellum* with a black, triangular spot near each basal angle; *clavus* with a distinct white blotch around the apex of the central nerve; *corium* without a transverse band.

Head: crown pale or clear yellow in front, generally with a more or less distinct brown spot near each eye. *Face* and *clypeus* pale yellow. *Antennæ*: apical plate somewhat large, ovate, black.

Thorax: *pronotum* brown or brownish-yellow, anterior margin sometimes yellowish; disc, anteriorly, with four short, transversely placed, black streaks. *Scutellum* clear yellow, frequently next the apex yellowish-white; near each basal angle is a triangular black spot; middle of the disc generally brownish or brown. *Elytra*: *clavus* yellow; inner margin, from the base to round the scutellar region, blackish, from thence to the central nerve yellow, and from the latter to the apex blackish; central nerve fine, white, around its apex a distinct, somewhat oval, white blotch. *Corium* yellow between the claval suture and the 2nd longitudinal nerve, from thence to the anterior margin pale testaceous; nerves fine, white, delicately punctured along each side. *Membrane* slightly brownish-yellow; marginal nerve round the apex of the inner margin, and the apex of two or three of the cell nerves, brown. *Legs* yellow; *thighs* with a short, black, longitudinal streak on the outside and inside; *claws* black.

Abdomen above, black, side margins broadly yellow, posterior margins of the segments down the back very narrowly yellowish; beneath yellow; last genital segment black, its lower margin, between the processes, yellow; external processes yellowish, resembling those of *I. adustus* in form, apex narrowly black, clothed with long pale hairs. Length, $2\frac{1}{2}$ — $2\frac{3}{4}$ lines.

Resembles *I. laminatus* in having a white blotch in the clavus, but there all likeness ends, as it is without the pale transverse band on the elytra exhibited by that species. Sometimes the ♂ of *I. populi* has the head, sternum, abdomen (beneath), and legs of an orange colour.

Common everywhere upon willows and poplars from the end of June to September.

(To be continued).

DESCRIPTION OF TWO NEW GENERA AND THREE NEW SPECIES OF ANTHRIBIDÆ FROM NEW ZEALAND.

BY D. SHARP, M.B.

The insects here described have been sent to me by Mr. R. Lawson of Scarborough, who is so well known to British entomologists for his success in discovering and capturing new or rare species of *Coleoptera*. They were captured by his brother in the neighbourhood of Auckland, New Zealand, and form part of a little lot of most charming and in-

teresting beetles. There can be no doubt that Mr. Lawson of New Zealand shares his brother's genius for collecting; and I feel sure, that, if he continue his researches there, he will prove New Zealand to possess a Coleopterous fauna of the most interesting character, and rich in species. The genus *Lawsonia* is remarkable, in that in some individuals the antennæ are very slender, and are about five times the length of the rest of the insect; a proportion which is, I believe, not surpassed by any other beetle.

LAWSONIA, nov. gen. *Anthribidarum* (*Proscoporhinides*).

Prothorax carenâ transversâ ab elytris remotâ.

Rostrum brevissimum, capite haud longius.

Antennæ tenuissimæ, clavâ angustâ ex articulis duobus ultimis cum articuli noni apice constructâ.

Rostrum broad, very short, only about as long as the head, a little dilated on each side in front of the insertion of the antennæ. Eyes greatly emarginate. Vertex simple. Antennæ slender, always elongate, though of variable length in the same species, inserted at the side of the rostrum close to the eyes, so that the scrobes are mere foveæ, their first joint broad and dilated, obliquely truncate at the base, so as to adapt it to move over the projecting portion of the side of the rostrum, 2nd joint short, the following joints slender, each distinctly thickened or knotted at its extremity, the 10th and 11th joints, together with the apical portion of the 9th, forming a very distinct slender club. Prothorax short and transverse, its elevated line moderately distant from the base, and continued forwards about half-way to the front along the sides. Scutellum very small, anterior coxæ contiguous, middle and posterior ones not contiguous. Tarsi with the basal joint elongate, nearly twice as long as the 2nd joint, 3rd joint small, claws each with a small but quite distinct tooth.

The only genus that appears at all closely allied to the present one is the genus *Proscoporhinus* described by Montrouzier, from New Caledonia, and from it *Lawsonia* differs by its head being simple in both sexes, and by the very short rostrum.

LAWSONIA LONGICORNIS, n. sp.

Oblonga, fusca, squamulis griseis minus evidenter variegatis vestita, antennarum clavâ nigricante, pedibus viridi-testaceis, subpellucidis, tarsis fuscis; antennarum articuli noni parte gracili elongatâ, quam clava longiore.

Long. corp. 1 $\frac{1}{4}$ –2 lin., antennarum 2 $\frac{3}{4}$ –9 lin.

Antennæ very variable in length, very slender, but with the extremity of each joint from the 3rd to the 8th stouter and nodose, the extremity of the 9th joint

forming with the 10th and 11th joints an elongate slender club, the undilated part of the 9th joint elongate and longer than the whole of the club; they are of yellowish colour, with the basal joint and the club blackened. Head narrower than the thorax, clothed with fine, depressed, scale-like hairs; it is a little transversely elevated on each side in front of the insertion of the antennæ, and has a fine, indistinct, elevated line on each side, extending forwards from the inner margin of the eye. Thorax transverse, quite as broad as the elytra, densely clothed with scales, those along the middle generally paler than the rest; a little rounded at the sides, the front angles absent, the hind ones obtuse, the basal line not straight but curved towards the scutellum in the middle. The elytra are about twice as long as the thorax; each has ten rows of punctures (including the marginal one), and a short accessory sutural row at the base; they are clothed with very fine scales, these are a little variegated, and show some darker obscure quadrate spots, most visible towards the extremity, each has also an obscure elevation near the suture at the base. Under-side clothed with pale grey, fine, hair-like scales. Legs pale greenish-yellow, sub-transparent, the tarsi darker, especially towards the extremity.

The males appear to vary greatly in the length of the antennæ, and to present no external characters by which they can certainly be distinguished from the other sex.

LAWSONIA VARIABILIS, n. sp.

Oblonga, sub-cylindrica, fusca, squamulis griseis vestita, elytris ante apicem circulo (vel lineis duabus obliquis plus minusve distinctis) squamulorum nigro-fuscorum; pedibus sub-pellucidis, tarsis fuscis; antennarum articuli noni parte gracili brevi, quam clava haud longiore. Long. corp. $\frac{7}{8}$ —2 lin., antennarum $1\frac{1}{2}$ —3 lin.

This species differs from the *L. longicornis* by the structure of the 9th joint of the antennæ; this difference might well be supposed to be a sexual one, were it not that it is always accompanied by a difference in the colour and markings of the elytra, and also that I have satisfied myself as to the existence of the two sexes in *longicornis*. *L. variabilis* varies greatly in size, but the antennæ seem not to vary in their development, except in ratio with the size of the insect. The slender part of the 9th joint of the antennæ is in this species so much abbreviated, as not to be longer than the length of the club. The elytra have towards the extremity two oblique dark marks; these may always be traced, though sometimes they are but little evident, and sometimes the whole space between them is covered with dark scales, so that there is then near the extremity of the elytra a large common circular blotch. The thorax appears to be always rather narrower, and the elytra more convex and cylindrical than in *longicornis*, but in other respects the two insects seem quite similar.

ETNALIS, nov. gen. *Anthribidarum* (*Eugonides*).

Prothorax carenâ transversâ elytrorum basi contiguâ, angulis posticis extrorsum prominulis.

Rostrum brevissimum.

Oculi emarginati.

Antennæ longer than head and thorax, the three last joints forming a well-marked club, similar in the two sexes, except that the 11th joint is longer in the male than in the female. Rostrum short and broad, shorter than the distance from the front of the thorax to the front of the eyes, the antennal scrobes quite lateral and foveiform; eyes emarginate, the hind lobe larger than the anterior. Basal line of thorax contiguous with the elytra, at the sides not directed upwards, but detached as it were, and directed outwards as a stout spine. Anterior coxæ contiguous, middle and posterior moderately distant. Legs slender, basal joint of tarsi elongate, claws distinctly toothed.

The transverse line of the thorax which here, instead of being directed upwards at the sides, projects outwardly as a strong spine, distinguishes this genus apparently from all known *Anthribidæ*. Its nearest allies appear, however, to be certainly the *Eugonides* of Lacordaire.

ETNALIS SPINICOLLIS, n. sp.

Sub-cylindricus, squamulis vestitus, elytris maculis duabus post-scutellaribus, fasciâ communi latâ post-mediali, maculisque duabus ante-apicalibus nigris.

Long. $1\frac{1}{3}$ – $1\frac{3}{4}$ lin.

Mas tibiis intermediis incurvis, abdomine segmentis ventralibus 4 primis sub-compressis, medio impressis.

Antennæ reddish, the intermediate joints darker in colour than the basal and apical ones, 1st joint short and stout, 2nd oval, short, 3rd elongate and slender, longer than any of the following joints, joints 4–8 each shorter than its predecessor, the 8th notably shorter than any of the others, 9th triangular, about as long as the 7th, 10th quite as broad as the 9th, transverse, 11th (in the male) as long as the 9th and 10th together, in the female shorter. Head rather narrower than the thorax, rather coarsely punctured, but the sculpture is concealed by the fine pale grey scales with which it is clothed. Thorax (without the spines) but little broader than long, rather narrower than the elytra, the lateral spines applied to the shoulders, and scarcely extending beyond them; it is clothed with fine hair-like scales, of a pale grey, and brownish or blackish colour, and mottled with these colours in an irregular and variable manner. Elytra nearly twice as long as the thorax, with distinct rows of punctures, but clothed with pale grey and with darker scales, the darker scales forming a transverse band behind the middle, two spots behind and near to this, and two spots near the scutellum, the band as well as the spots variable in size and distinctness. Under-side clothed with whitish hairs. Legs red, the femora dark in the middle, and the tarsi also blackish except the basal joint.

Thornhill, Dumfries: April, 1873.

ON A GENUS OF THE *BYRRHIDÆ* FROM JAPAN.

BY T. VERNON WOLLASTON, M.A., F.L.S.

FAM. BYRRHIDÆ.

(Sub-Fam. NOSODENDRIDES).

Genus *DENDRODIPNIS*, *nov. gen.*

Corpus ovale, supra valde convexum sed subtus deplanatum, fere calvum (scilicet oculo fortiter armato minute et parce sericatum); capite sub-triangulari, haud in prothoracem inter otium retractili; prothorace brevissimo, lato, transverso, postice latitudine elytrorum ad basin, angulis posticis subrectis (nec productis), antice latissime sed leviter emarginato (nec in medio sub-producto); scutello magno, triangulari; elytris punctatis sed haud striatis; prosterno postice (inter coxas anticas) in lobum angustum producto; metasterno maximo, elongato; abdomine e segmentis 5 composito, segmentis longitudine æqualibus, sed conspicue trisinuatis. Antennæ sub margine capitis ante oculos inserta, 11-articulatæ, articulis 1^{mo} et 2^{do} (illo præcipue) crassiusculis, illo subtus sub-depresso, 3^{tio} longissimo, gracili, 4^{to}, 5^{to}, 6^{to} et 7^{mo} breviusculis et gradatim magis transversis, 8^{vo} valde transverso lenticulari (intus etiam sub-lamelliformi) sed ad clavam haud arcte adpresso, reliquis clavam magnam valde abruptam sub-perfoliatam 3-articulatam efficientibus. Labrum indistinctum. Mandibulæ sub-triangulares, apice valde incurvæ acutissimæ integræ, extus longe et robuste pilosæ, intus haud emarginatæ (in uno etiam dente brevi obtuso sub-triangulari longe infra apicem auctæ) ac breviter ciliatæ. Maxillæ bilobæ; lobo externo angustulo, subrecto, apice dense velutino; interno latiore, paulo brevior, tenuissime membranaceo extus sub-coriaceo, apice obtuse uncinato (aut fere quasi 3-uncinato), intus longe denseque pubescenti. Palpi brevissimi; maxillares articulo 1^{mo} parvo, sub-obtriangulari, 2^{do} et 3^{tio} majoribus, crassioribus (illo sub-poculiformi, hoc brevi transverso extus sub-producto), ultimo elongato subfusiformi-cylindrico; labiales articulo 1^{mo} parvo, 2^{do} majore, ultimo elongato-ovali. Mentum maximum, corneum, sub-quadratum, antice leviter attenuatum ac paulo rotundatum. Ligula magna, membranacea, ciliata. Pedes retractiles; tibiis latis, compressis, ad angulum internum breviter bicalcaratis, posterioribus extus minutissime parce spinulosis; tarsis filiformibus, ad tibia sub-excavatas inter otium reponendis, articulis 4 basalibus brevibus æqualibus; unguiculis parvis.

A "*dendron*," truncus, et "*deipnon*," cœna.

Not having been able to procure a type of *Nosodendron* for comparison, I will not undertake to say whether the insect from which the above diagnosis has been compiled should be regarded as generically distinct from the European *N. fasciculare*. Judging, indeed, from its published characters, the latter does not appear to differ structurally, to any considerable extent, from the species which I have been requested by Mr. G. Lewis to examine, and which was taken by himself in the islands of Nipon and Kiushiu (namely, at Hiogo and Nagasaki) of the Japanese Archipelago, where it would seem, like our *Nosodendron fasciculare*, to delight more particularly in the sap of wounded

trees (under which circumstances it may be seen, as he informs me, to *glide* about partially immersed in the exuding sap). Even if it be not, however, a true *Nosodendron*, there can be no question that its affinities are altogether with that genus,—the elongated third joint of its antennæ, which are implanted under the lateral margin of the head, the fact of the latter *not* being retractile beneath the anterior region of the prothorax, the indistinctness of its upper lip, and the large size of its mentum (which closes up the entire oral cavity) being in complete accordance with the sub-family *Nosodendrides* of the *Byrrhidae*. But in its body *not* being fasciculated (but merely clothed, and even that in *unrubbed* examples only, with a short, minute, remote, cinereous pubescence) it recedes from *Nosodendron*; and there is also no mention made in the diagnoses of the latter to which I have access, of the narrow and *lenticular* antennal joint (well nigh lamelliform internally) which immediately precedes the very abrupt triarticulated club. It appears to me, too, that *all* the tarsi in *Dendrodipnis* are received during repose against the dilated tibiæ, and not merely the front pair, as is stated to be the case in *Nosodendron*.

DENDRODIPNIS CÆNOSUS, *n. sp.*

D. ovalis, niger, nitidus, subtus deplanatus, sed suprâ valde convexus et ubique (scutello fere impunctato excepto) sub-æqualiter punctatus (punctis versus latera paululum profundioribus), fere calvus, sed in exemplaribus bene conservatis minute et parce subcinereo-pubescent; prothorace brevissimo, transverso; elytris haud striatis; antennis piceo-ferrugineis, clavâ pallidiore; pedibus piceis. Subtus antice sat dense sub-asperato-, sed in metasterno abdomineque multo parcius, punctatus.

Long. corp. lin. $2\frac{1}{3}$ — $2\frac{1}{2}$.

Habitat insulas Japonicas; ad truncos arborum vulneratos, in insulis Nipon et Kiushiu, a Dom. G. Lewis repertus.

Teignmouth: *May*, 1873.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(*continued from p. 9*).

Halonota bimaculana, Donovan.—Wocke substitutes *similana*, Hüb. (1793), which is apparently a prior name.

Halonota trigeminana, Steph.—Although abundant in many parts

of England, this species seems little known on the Continent. Zeller says he only knows British specimens; and the only other locality given by Wocke is West Germany.

Halonota cirsiana, Zeller.—This species is variable in size, and slightly so even in form of wing, from which it becomes exceedingly puzzling. I have a form taken in the Norfolk Fens which differs from any other *cirsiana* that I have seen, its fore-wings being narrower, especially at the base. The dorsal spot is nearly square, the ocellus round and rather distinct, and the costal dots strongly marked. It may possibly be a distinct species; but my specimens are all males, and, in the absence of the other sex, I should not like to separate it, especially as, among ordinary *cirsiana*, very small specimens sometimes occur, which, from their narrow wings and sharply marked dorsal blotch, differ from the type.

Halonota scutulana, Wilkinson.—It seems that this species has become involved in some confusion. After examining specimens (♂ & ♀) of our species, Prof. Zeller informs me that it is not the true *scutulana*, Treitschke, and of this latter he has very kindly sent specimens of both sexes. The ♂ bears a considerable resemblance to that of our species, but has the apex of the fore-wings *obtuse*; it is also much paler in colour, and the portion of the fore-wing beyond the central fascia is whitish, so that the costal and apical brown dots are very distinct. The ♀ is more like *Brunnichiana*, being dark brown, with a small square dorsal blotch. Zeller says that he found it common in the "Prater" of Vienna, among a gigantic species of thistle which forms impenetrable thickets, and that the *Brunnichiana*-like females are certainly the other sex of the males.

This species seems to be confined to Southern Germany; at any rate, there is no reason for supposing it to be British.

Zeller seems to have become enlightened respecting this species during his visit to Vienna in 1867, for he had previously, when in England, assured Mr. Doubleday that our insect was *scutulana*, Tr., hence the reference in Mr. Doubleday's list. Now, however, he is disposed to think that our species, notwithstanding its size and the strikingly distinct markings of the male, is only a variety of *cirsiana*. He says that he finds both forms flying together in plenty in Northern Germany.

Feeling unable to assent to this opinion, I have had recourse to Mr. Doubleday, to whose abundant stores of information and patient

kindness I have already been so largely indebted, and cannot do better than quote his words in reply—"I am quite certain that we have two "species here, one (*scutulana* of our lists) feeds in the common creeping "rooted thistle (*Carduus arvensis*), which grows on dry commons and "road-sides, and the moths appear in May; the other (*cirsiana*) feeds "upon the marsh thistle (*Carduus palustris*), which grows in damp "meadows and moist places in woods, and the moths appear a month "later. The two sexes rarely differ at all in size, colour, or markings, "and there is scarcely any trace of the second white blotch so conspicuous in the long-winged males of the previous species."

This seems perfectly conclusive as to the distinctness of the two species, and it appears to me necessary to restore Haworth's name *Pflugiana* to the larger one. His description—"Fore-wings fuscous, "slightly clouded with black and cinereous, with posterior, transverse, "double, white costal streaks, and a brown spot at the apex; a strongly "marked white fascia, hardly clouded, and divided nearly in the middle, "and another very like it from the anal angle, these two being divided "by a fuscous fascia,"—is sufficiently accurate, as also is Wood's fig. 902, under the same name, and therefore it cannot well be ignored, although Fabricius (from whom Haworth probably took the name) described it so vaguely, that Wocke gives *Pflugiana*, Fab., as a synonym of *fænella*, Linn. If this name were passed over, it would be necessary to adopt *stictana*, Haw., of which the description of var. *a* certainly refers to the female of this species, or else *sticticana*, Wood, whose fig. 906 is a capital representation of the same.

Guenée's description of *novana*—"Allied to *scutulana*, but the "apex of the anterior wings is sharper. Fore-wings fuscous, variegated "with lead colour, with two large rounded white spots on the inner "margin, the outer one having three or four black dots. Posterior "wings fuscous, whiter underneath, with a small spot at the apex,"—applies very well to this species, but his types, communicated to me by Mr. Doubleday, have a different appearance, being of a brighter, browner colour, with the dark fascia more broken, and the costal streaks more distinct, than in our ordinary form. The female of this form has not been noticed, but the male is quite as distinct in colour from *Pflugiana* as is *scutulana*, Tr., and it may eventually prove distinct. Wocke admits it as a separate species into his list, but with an indication that he has not examined it, and he gives *England* as its only locality, whereas Guenée says that he has taken it in the south of France.

The synonymy of these two forms will therefore be as follows:

Pflugiana, Haw., Steph., Wood (902).

stictana, var. *a* (♀), Haw.

sticticana (♀), Steph., Wood (906).

scutulana, Wilk., St. Man. (*non* Treitschke, &c.).

novana, Gn. (præc. var. ?).

It seems doubtful whether Dr. Wocke was acquainted with this species, since he makes *scutulana*, Treitschke, as well as *scutulana*, Wilk. (Sta. Man.), identical with *Pflugiana*, Haw.

Halonota Brunnichiana, Froel.—I have not found this species so generally common as Wilkinson represents, and think it exists only where the coltsfoot is plentiful.

Halonota tetragonana, Steph.—I strongly suspect that the larva of this species feeds in the stems or roots of *Tamus communis*, having always found it flying about and settling on that plant. There must surely be some error in Wilkinson's statement that the full-fed larva may be found, in the autumn, under moss on beech trees. From larvæ found in such a situation Lord Walsingham reared *Carpocapsa nimbana*.

Prof. Zeller tells me that his *enicicolana* from Syracuse is very similar to this species, but with narrower wings and a different ocellus.

Halonota turbidana, Treitschke.

Halonota grandævana, Zeller.—Already recorded and described, Ent. Mo. Mag., vol. ix, p. 272.

Halonota inopiana, Haw.—Dr. Wocke places this species (forming a sub-genus *Idiographis*) between *Ptycholoma Lecheana* and *Lozotænia musculana* and *unifasciana*, referring to Haworth, Stephens, and Wood, and quoting *centrana*, H.-S., as a synonym; but he again quotes it from Wilkinson, as a synonym of *hepatariana*, H.-S., placing 350 species between the two references. The latter is a mistake, since *hepatariana*, H.-S., is rather smaller, and has black hind-wings, while *centrana*, H.-S., is unquestionably our insect. Haworth's name has the precedence.

Halonota fænella, Linn.

Halonota costipunctana, Haw.—This species is omitted by Wilkinson, but included in Mr. Doubleday's list, where, however, *gallicolana*, Zell., is appended as a synonym. This seems to have arisen from a mistake of Stephens', and *gallicolana* has since been ascertained to be a distinct species. It is, however, so closely allied to *obscurana*, Steph., which Wilkinson places in the genus *Semasia*, that it will be necessary to notice it along with that species.

Haworth's description of *costipunctana* is as follows—"Alar. exp. "6 lines. The wings variegated with fuscous and grey, and behind on "the costa with white, with seven regular black spots; hind margin "with a median white spot. Very like the preceding (*sticticana* = "*cirsiana* and *Pflugiana*, ♀), but differing in the greater number of "the collected posterior costal dots, and in their being not far apart "nor geminated. These dots are behind a very obsolete greyish fascia, "which crosses obliquely from the middle of the costa to the anal "angle. In all else like the preceding. Habitat in Norfolk, but rare."

Some time ago, I had an opportunity of examining a very old cabinet of Norfolk insects, many of them received from Haworth and his friends, but the only two specimens in it representing *costipunctana* were *argyrana*, ♀. Mr. Doubleday's single specimen, however, although not fine, agrees most accurately with Haworth's description, and cannot be united with any other species. Prof. Zeller, who has seen it, suggests the possibility of its being a male *hepaticana*, but the costal markings do not agree.

Under these circumstances, it appears to me that *costipunctana* must be retained in our lists. I wish I could find the Norfolk locality.

Halonota ravulana, H.-S.—Figured and described under this name in the Ent. Annual for 1858. It is, however, more nearly allied to the genus *Coccyx*. Prof. Zeller says that it has (in the ♂) a thick pencil of hairs on the anterior margin of the hind-wing, and concealed by the fore-wing. Thinking it a novelty, he described it in the "Tijdschrift voor Entomologie" under the name of *Tomiana*. It is rare in Germany as with us. Mr. Doubleday took one specimen at Epping, some years before Mr. Meek met with it. There is also a specimen in Mr. E. Shepherd's collection.

The next genus (*Dicrorampha*) has already been noticed in Ent. Mo. Mag., vol. ix, p. 25, and I have very little to add now, except that the new species (*herbosana*) has been found to occur at Paisley, and seems to be widely distributed over the north of England, where it has been mistaken for *D. plumbagana*.

I am inclined to think that we have an undescribed species allied to *plumbagana* and *plumbana*, but with a rounded costa. I have, however, as yet seen but two specimens, both males, and can only now draw attention to it in the hope that more specimens, including females, may be obtained for determination.

(To be continued).

Notes on a few species of Coleoptera observed this season.—*Ætrophorus imperialis* in quantity in the *débris* of fallen reeds, near Ilford, Essex (thanks to my friend Mr. J. G. Marsh, who introduced me to the locality). I do not think it has hitherto been recorded from so near London. *Odacantha*, *Achenium humile*, *Lathrobium punctatum*, *Stenus opacus*, *Olibrus oblongus* (in profusion), *Hypocyrtus discoideus*, *Throscus obtusus*, *Ceuthorhynchus viduatus*, &c., also occurred at the same place.

Homalota hepatica; several specimens, including one or two ♂, all swept up about noon, in shady places on hot sunny days, at St. Mary Cray, Shirley, Darenth, and Caterham. *H. rufolestacea*; one specimen by sweeping at Caterham; this is, I believe, the second recorded British example, the original having occurred to me in a similar manner. *Quedius scitus*; under rotten bark, Richmond Park and Chatham. *Xantholinus glaber*; under bark, Richmond Park (also *Symbiotes* and *Megapenthes tibialis*, again, at the same place). *Scydmaenus Godarti*; three examples, in rotten wood of an old beech tree, in the forest, at Loughton. *Batriscus*, *Euplectus bicolor* (♂ ♀), *Pediacus dermestoides*, and *Cicones*, also occurred in the same tree. *Colon rufescens*, *Zebei*, and *viennense*; all in one evening by sweeping at Caterham. *Ptenidium turgidum*; in rotten wood of ash at Chatham. *Meligethes corvinus* has again put in an appearance at Caterham. *M. symphyti*; again by sweeping *Agraphis nutans*, but this time at St. Mary Cray. Why this beetle is named *symphyti*, I am at a loss to conceive, as all the specimens I have taken at different times (perhaps a dozen in number) in various localities, have all occurred by sweeping *Agraphis*, and never anywhere near marshy places, in which only *Symphytum officinale* grows. *M. difficilis*; common in flowers of *Lamium album*, at Caterham, as in many other localities. *Ceuthorhynchus urticæ*; Caterham, but very rare this season.—G. C. CHAMPION, 274, Walworth Road, London, : 14th June, 1873.

Occurrence of galls of Andricus quadrilineatus, Hartig, near Aberdeen.—On Saturday, June 7th, at Banchory on Deeside, I found, on the catkins of oak (var. *pedunculata*) numerous mature galls of the above species of *Andricus*. When found they were green, and presented only very faint traces of ridges, but now (June 10th) some which were allowed to dry present strongly marked ridges, and amongst them I find specimens closely resembling Mayr's figures and descriptions of Schenck's supposed species *A. flavicornis*, *pedunculi*, *ambiguus*, and *glabriusculus*.

On the same day and at the same place I found the galls of *Andricus ramuli*, L. (cotton galls) abundant on one tree. The galls of *Andricus curvator*, Hartig, are common everywhere in this district, and last autumn I found the galls of *Biorhiza renum*, Hartig, abundant in a wood a few miles north of Aberdeen.—JAMES W. H. TRAILL, Old Aberdeen : June 10th, 1873.

Galls of Cecidomyia salicis, Schrank, on Salix purpurea, L.—From swellings on the twigs of *Salix purpurea*, collected by me near Banchory, I have lately reared this midge.—ID.

Captures of Lepidoptera at Grange-over-Sands, North Lancashire.—On the 31st May I went to look for *Catoptria aspidiscana*; after seven hours' close work I only succeeded in taking three specimens, though the day was one of the better sort; however,

by dint of sheer labour I made up a good bag on the laburnum, for I took five dozen *Cemiosoma laburnella*, a species I never before met with, though it is so common, and in my net I found a fine *Ecophora flavifrontella*; among the nut bushes *Lithocolletis Dunningiella* and *Anchylopera obtusana* were not rare, and a fine specimen of *Coleophora fuscociliella* gladdened my eyes with its neatly white-tipped antennæ. On a rock sat a lovely female *Lampronia luzella*, and under the shade of the yew *Micropteryx Thunbergella* swarmed; in the open glades there were plenty of wood-white butterflies. I got within a couple of feet of a female, apparently about to lay her eggs on a sprig of *Lotus*, when two others came and disturbed her; I threw my net after them, and captured two at once. On the grassy banks the pretty little *Nemeobius Lucina* was flitting about, as well as *E. octomaculalis* with its jerking flight, and there were plenty of *Bucculatrix aurimaculella*, *Dicrorampha plumbagana*, and *Butalis fuscoænella* among the ox-eye daisy; also *P. Lewenhoeckella*, as usual, walking about on the long grass, and *Laverna miscella* frequent among the *Helianthemum*. On the boles of fir was *Nola cristulalis*, and in the shoots the larva of *Retinia Buoliana* was at work; flying round a spindle tree in the shade was *Lobesia reliquana*, and on the buckthorn was *Bucculatrix frangulella*, and quite a quantity of the larvæ of *Scotosia vetulata*; upon opening the box I put them in, no less than eight pupæ were hanging by the tail. Whilst walking over some *Veronica chamædrys* the little active *Adela fibulella* was noticed amongst its food-plant. A bed of cowslip produced *Eupæcilia ciliella* in plenty; the larvæ of *Pterophorus lithodactylus* and *Ebulea crocealis* were common on the leaves of *Conyza squarrosa*. Still, insects on the whole were comparatively scarce, as I found it took a long day to fill a gross of boxes.—J. B. HODGKINSON, 15, Spring Bank, Preston: June 6th, 1873.

Note on Thalpochares parva.—In reference to Mr. Barrett's remarks at p. 20 of this volume, that very little is known of *Micra parva* in this country, I send the following notice. The specimen upon which Mr. Doubleday inserted this insect in his list was caught by my late brother, Mr. C. Jordan, in my presence at Teignmouth. It came to light as we were sitting by an open window facing the river: this was in the latter end of July, 1844. It was not recorded at the time owing to its name being doubtful; and, indeed, the only mention of its capture is in Mr. Reading's list of South Devon *Lepidoptera*. I have sent this insect to Mr. Barrett, he has kindly examined it again, and pronounced it to be a genuine *parva*. Both *parva* and *paula* are therefore natives of the southern parts of our island.—R. C. R. JORDAN, 35, Harborne Street, Edgbaston, Birmingham: June 16th, 1873.

A few words on Vanessa Antiopa.—The occurrence towards the close of last season of this species in unwonted numbers has given rise to much discussion, and the disputants have separated into two parties, the one referring the phenomenon to migration or importation from the continent, and the other steadily refusing to acknowledge such a solution of the question, and maintaining the claim of the insects to be regarded as reared in this country.

With all respect to the opinions of those taking the latter view of the case, and much as we may desire to believe it to be correct, I imagine on carefully weighing all the arguments *pro* and *con*, that the balance will incline to the former.

The theory that the distance between the continent and our shores interposes

an effectual bar to migration has little to substantiate it, as many well accredited instances are on record of the observation in mid-channel of species far less capable of long sustained flight than *V. Antiopa*, and migratory swarms of *V. cardui* have been repeatedly noticed both here and abroad, as may be remembered by most of us.

One fact has, however, apparently escaped consideration, tending to throw much light on the vexed question, viz., the habits of the genus *Vanessa* under hibernation.

It is well known that all the species of which a genus is composed share, in a greater or less degree, any peculiar habit, especially amongst allied species; and I may here quote the remarks of M. Boisduval, one of the greatest entomologists of the present century, and one who was too correct an observer to make a statement of this description without due investigation. In his Introduction to the 'Species général des Lépidoptères' (Suites à Buffon), Tom. 1, p. 29, he says:—"Quelques-unes de nos *Vanessa* européennes, et, à ce que nous soupçonnons, plusieurs Hétérocères, présentent dans certains cas une anomalie des plus remarquables: leur accouplement n'a lieu que sept ou huit mois après l'éclosion de l'insecte parfait. Ainsi, par exemple, les *Vanessa Antiopa*, *polychloros*, &c., qui vivent en famille à l'état de chenille, et qui éclosent en été, ne s'accouplent que l'année suivante au printemps. La plus grande partie continue de voler jusqu'à la fin de son existence, tandis qu'une autre se retire dans les crevasses des murailles, les arbres creux, les souterrains, les caves, et tombe dans un engourdissement léthargique jusqu'aux premiers beaux jours. Quelques auteurs ont cru que c'étaient des individus tardifs qui avaient été surpris par l'approche de la mauvaise saison et qui s'engourdisaient; mais il n'est pas ainsi, nous avons eu occasion d'observer des *Vanessa polychloros* et *urticæ*, au mois d'août, dans un engourdissement profond, pendant que d'autres individus des mêmes espèces volaient à l'ardeur du soleil. C'est ce qui explique pourquoi on trouve au printemps des *Vanessa* qui sont assez fraîches, quoique toutefois leurs couleurs aient perdu un peu de leur vivacité par l'hibernation."*

Now as *V. Antiopa* is closely allied to *V. polychloros* in habits, &c., we may infer that the peculiarity is common to both of them, as the specimens of the former captured in this country in spring, and which we may fairly suppose to be bred here, are not more imperfect than those of the latter, notwithstanding *Antiopa* is a more delicate insect than *polychloros*, and as such more liable to dilapidation.

We have here a means of testing the value of the respective theories, for, should *V. Antiopa* appear this spring in much greater numbers than in former years, we may reasonably admit their claim to having been bred here; but, on the other hand, should only a few occur as in ordinary seasons, I think we may correctly regard them as a foreign importation, as I conclude the greater number appearing in the spring to be those which have commenced their hibernation soon after emerging from the pupa, and therefore unlikely to be subject to the unknown influences which promote migration.

I may remark "*en passant*" that *polychloros* and *urticæ* have been observed as commonly as usual this season, apparently little affected by the cold weather, or from the mild winter decreasing their numbers through imperfect hibernation.—C. FENN, Ashley House, Eltham Road, Lee, S.E.: May 20th, 1873.

*On this point see also the observations made by Mr. Barrett in the autumn of 1865, on specimens of *Vanessa urticæ*, which had taken up their quarters for hibernation as early as August 11th, although for two months afterwards the weather remained hot and sunny, and *V. urticæ* was flying about in profusion.—Ent. Mo. Mag., Vol. ii, p. 190.—Eds.

On the Natural History and position of Aventura flexula.—It is not often that I have taken on myself to make any remarks on the position of a species in any of the Lists which from time to time are put forward, but in this case I cannot help saying a few words.

It certainly seems that the *imago* has been a puzzle to systematists, for we find its position varied from one division to another repeatedly; but I think that a knowledge of the larva state would have prevented all this uncertainty.

Staudinger to my mind has come nearest the truth, in placing *Aventura* at the end of the *Noctuæ*—among *Catocala*, *Toxocampa*, &c.; but I think he is wrong in letting *Toxocampa* come between *Catocala* and *Aventura*. And in my description below, I shall italicise those points in the larva of *Aventura* which induce me to place it next to *Catocala*.

The full-grown larva is seven-eighths of an inch in length, *widest at the ninth and tenth segments*, the head full but rather less in bulk than the second segment; the anal flap rounded; *the body above is convex*, but *each segment a little swollen in the middle* and scored across with two deep wrinkles, both at its hinder end; *below the spiracles is a rather inflated projecting ridge, fringed with a row of fleshy filaments*; some of these filaments are simple, others are branched like the 'chevaux de frise' one sees sometimes on enclosure walls; *the belly is flat*; the anterior legs well developed; *the first two pairs of ventral legs much shorter than the other two pairs*, though each pair is progressively longer than the preceding, *the anal pair being the longest*; the dorsal tubercular warts are prominent, each furnished with a fine short hair; *on each segment the hinder pair is much larger than the front pair, and on the ninth and twelfth segments largest*; on the twelfth they are placed on a transverse prominent ridge.

The colour is of a more or less pale, dull, bluish or greyish-green, or else this colour slightly tinged with brownish-ochreous, rather paler on the sides; the dorsal line darker green, being in fact a series of spear points faintly edged with whitish-green, and by short black streaks at the end of each segment; the sub-dorsal marking is a paler tint of the ground, to be seen plainly only just at the segmental divisions, but its course is indicated well enough on the other parts by a fine sinuous line of black above, and a line of darker green below; the ninth and twelfth segments are darker in tint than the others; slight curves of blackish dots or dashes are on the back of the second, third, and fourth segments along the sub-dorsal region; the head is more whitish-green than the body, and is marked with spots and curves of black on each lobe, and about the mouth; the tips of the tubercular warts are black, on bases of whitish-green, and a broad streak of this pale colour is on the side of each segment beyond the fourth; the filaments are greenish-white; the belly a dull, pale, bluish-green; the anterior legs are spotted with black, a black streak runs down the front of the fourth pair of ventral legs; the spiracles of the ground colour ringed with dark brown.

The habit of the larva is to lie close by day for hours together, with its legs spread out flat to their full extent upon lichens, on which at night it feeds.

I am indebted to several friends for opportunities of studying this species. Mr. Harwood sent me in 1868 the first I ever saw, which he had beaten either from oak or aspen, and then I took it to be a young *Catocala*. The Rev. B. Smith and Mr. W. Machin kindly sent me others beaten from lichen-covered thorns, cherry and

yew, in the three following years, and from one of them I was able to obtain a moth, the larva pupating in a folded hawthorn leaf after spinning the edges of the leaf closely together. The date when this larva was full grown was May 23rd, 1871; and the moth appeared June 21st.—WILLIAM BUCKLER, Emsworth: June, 1873.

Since the above was written, I append a brief mention of a fine example of this larva which Mr. Harwood has just sent me:—It is a little over an inch in length; the third segment tumid, and beyond the fourth there is on each of the other segments a slight transverse swelling which bears the hinder pair of tubercular warts; it has but few simple filaments, all the rest being more or less branched.

Its colour is brownish ochreous-green, and with fewer black marks than usual, for which, in this instance, a rather deeper tint of the ground colour is substituted.

This larva, when disturbed on its arrival, walked in a position like that of *Ophiodes lunaris*, as figured by Hübner.—Id., June 11th, 1873.

Supplementary notes on the Natural History of Lycæna Alsus.—At p. 186 of Vol. vii of this Magazine, was published an account of the egg and larva of this species. I am happy to be now able to add a description of the pupa.

All the larvæ I had in 1870 died without pupating, so in 1872 Mr. Buckler searched for more, and sent me about a dozen on July 30th. These I placed on a flowering plant of *Anthyllis vulneraria*, which was set in a large flower pot, and covered with leno; they quickly, however, gave over feeding, and nearly all found their way over the rim of the flower pot, and, under its shelter, fixed themselves on a webbing of silk spun on the leno, just above the string, which fastened it round the pot; and I believe that if I could have allowed them to remain undisturbed, they would not have moved again. But as they were kept outdoors, in order that they might be subject to the changes of temperature and weather as in nature, before very long, snails and slugs had eaten holes in the leno covering, through which came prying ants and spiders; an invasion which necessitated a renewal of the covering, and a disturbance of the larvæ; and this being repeated more than once, caused, I believe, the death of most of my stock. At last, however, after waiting ten months, I was, on June 3rd, 1873, rewarded with the sight of a newly turned pupa, which I now describe as it appeared after the colours had settled.

Length rather over a quarter of an inch; width less than one-eighth of an inch; in figure, when viewed in front, a long ellipse; but sideways, the rather prominent head, the rounded thorax, and swelling abdomen, with its blunt tip curved under, give a much more irregular outline; the wing-cases straight, long in proportion, well developed, but rounded off at the angles; the upper or back surface sparsely set with fine hairs.

The colour a dirty whitish-grey, approaching drab, more greyish on the head and thorax, paler on the abdomen; there is an interrupted dorsal stripe of black, and on either side a lateral row of short, oblique, black dashes; the nervures of the wings are well shown by the spaces between them being filled up with dark grey; the hairs are whitish, and the whole surface is sprinkled with some minute black dots.

As I write, this pupa is changing colour from the development of the imago, and I see that in 1870 the perfect insects were laying eggs on June 17th; so the

whole year's history comes to this:—egg laid about middle of June; larva hatched within a week, full-fed, and fixed motionless about the end of July, so continuing ten months till the beginning of *next* June; the pupa state then lasting some ten days or so, and the imago (apparently) living but a short time to perpetuate the species. The long continuance in the larva state, after being full-fed, seems very remarkable.—J. HELLINS, Exeter: *June 14th*, 1873.

Erroneous food-plant assigned to a larva.—In Vol. x of the Natural History of the Tineina, by a curious blunder, at p. 48 *Gelechia morosa* is said to feed on *Lythrum salicaria*; whereas Mühlig says distinctly in the Stett. ent. Zeit., 1864 (not 1862 as quoted N. H. T., Vol. x, p. 14, No. 43) “I found the larva at the beginning of May in the fresh heart-shoots of *Lysimachia vulgaris*.”

Hence, at p. 48, the name of *Gelechia morosa* should be removed from the insects feeding on *Lythrum*, and, at p. 50, under the Nat. Order *Primulaceæ*, there should be introduced after

Primula farinosa.....45 *Farinosæ*.

Lysimachia vulgaris ... 43 *Morosa*.

I have been led to this discovery from the fact of Mr. Barrett finding a larva in the shoots of *Lysimachia*, and writing to ask me what it could be.—H. T. STANTON, Mountsfield, Lewisham, S.E.: *June 7th*, 1873.

Review.

LES PAPILLONS DIURNES DE BELGIQUE; Manuel du jeune lépidopterologiste. Par LOUIS QUÆDVLIËG. Brussels, Mayolez; Paris, Savy; Berlin, Friedländer. 12mo, pp. 1—70, 1873.

This useful little manual is based on a plan to which we have nothing altogether analogous in works treating on the Butterflies of Britain. There are no detailed descriptions of the species, but this is attempted to be supplied by long dichotomous tables of those under each genus, with copious locality notes, and memoranda of the principal varieties and aberrations; and accompanied by a map illustrating the faunistic divisions of the kingdom. The work cannot, we think, fail to be of much service to young Belgian entomologists, and those of our own country will probably find it useful, for there is considerable identity of the Butterfly-faunas of the two kingdoms. Ninety-nine species are enumerated as found in Belgium. Not the least valuable portion is a copious introduction by M. de Borre (the indefatigable Secretary of the Belgian Entomological Society) on the geographical and geological features of the kingdom, which we think will do much towards expanding the ideas of his young readers, and prevent them from cherishing those narrow views that must be engendered by confining their attention solely to the fauna of a country like Belgium, which has political but no *natural* limits. He winds up by an *apologue* which we translate. “One day a foreigner, interested in the science of languages, and very ignorant of those spoken in Belgium, arrived there, and, after the manner of voyagers in the South Seas, set to work to draw up a little vocabulary of Belgian. After having successively visited Ostend, Bruges, Ghent, Antwerp, and Brussels, and collected in each of those towns a hundred Flemish words, he was in Tournay, where he obtained a hundred words of the dialect of that place; afterwards the towns of Mons, Namur, and Liège each furnished him with a hundred words of

"their various Walloon dialects, and he finished by seeking a like number of German words in the town of Arlon. Thoroughly convinced of having a good thousand words of a supposed Belgian language, he published his vocabulary, forming, one can well understand, most charming nonsense. You young entomologists who form Belgian collections only, do work which, in the eyes of science, has about as much value as the whimsical compilation of the foreigner of our *apologue*." The same charge cannot be laid against 'British' entomologists with equal force on account of our geographical position, and they may take comfort in the knowledge that they do not altogether pursue a phantom. But in sober earnestness we ask what it is that makes (say) *Argynnis Lathonia* taken at Dover worth a pound, but only worth sixpence if taken at Calais? That the species does sometimes occur in Britain needs no confirmation, so the artificial value cannot be caused because a new fact is established; and we think no one has pretended that there is any varietal difference between Dover and Calais examples, hence no new scientific information is adduced to warrant the discrepancy. However, the condition exists, and we have no objection to receive a British *Lathonia* and place it in our collection for purely financial reasons; but we decline to incur the expense of going to Dover *on chance* of obtaining that from which we can get an equal amount of scientific knowledge for *sixpence*!

NOTES ON *HETEROMERA*, AND DESCRIPTIONS OF NEW GENERA
AND SPECIES (No. 9).

BY F. BATES.

TOXICUM PICTICOLLE, *sp. n.*

♂. Elongate, cylindric; head, antennæ, legs, and under-side deep black, shining; prothorax and elytra deep velvety-black; the sides of the former occupied by a large, deep red, lunate spot; head covered with rounded punctures; labrum prominent, slightly rounded in front; lateral margins of head sinuous; front and vertex strongly concave; epistoma transversely convex, projecting beyond the sides of the front, its apex broadly, and slightly arcuately, emarginate; eyes completely, but very narrowly, divided, the upper portion nearly as large as the under; at the inner margin of each eye arises a rather short, robust, blunt, conical horn, slightly divergent at apex, and sloping a little forwards; antennæ with a strongly expanded, flattened club, of three transverse joints: joint 9 longer than 10, cupuliform; 11 smaller than 10, rounded at apex; prothorax sub-quadrate, wider than long, sides a little incurved, at apex, finely, and not closely, punctured; elytra elongate, cylindric, finely seriate-punctate; prothoracic flanks and sterna closely studded with large, rounded punctures.

♀. Head less deeply concave above, lateral margins less strongly sinuous, the horns reduced to tubercles; and the sides of the prothorax more broadly red.

Length, $4\frac{1}{2}$ — $4\frac{1}{4}$ lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: New Guinea; two examples (♂ and ♀).

The existence in Australia of species of *Toxicum* having but three joints to the club of the antenna, and of others wherein it is scarcely possible to decide whether it has three or four joints, has broken down the barrier that separated *Toxicum* from *Anthraci*us. The

division of the eye into two portions is a character equally uncertain; the eye, undivided in all the Australian species (included in my experience), in *quadricorne* from Java, Malacca, &c., and in others (undescribed) from Borneo, Batchian, &c., is, in nine or ten other Eastern species (to my knowledge), and in all the African species, completely divided. *Toxicum* must now be regarded as a less homogeneous and more widely dispersed genus, having *grande*, Pascoe, and the species just described, at its two extremities.

EPITOXICUM, *g. n.*

♀. Head short, broadly rounded in front; epistoma short, deflexed in front, distinctly projecting beyond the sides of the front; labrum very prominent; antennary orbits expanded, and extending nearly to the hind margin of the eyes; eyes contiguous to the prothorax, strongly divided, the upper portion broadly oval; the margin within each eye thickened and slightly elevated in the middle, forming a slight tubercle, which does not impinge on—or break the margin of—the eye; antennæ slender, joint 3 as long as 4 and 5 united; 4—8 gradually shorter, obconic; 9—11 abruptly expanded and enlarged, forming a distinct, elongate club, 9 and 10 being longer than wide, sub-cupuliform; 11 rounded; prothorax nearly square, slightly longer than wide, slightly narrower at apex than at base, apex feebly emarginate, base feebly sinuate; basal angles a little produced, and outwardly directed; elytra decidedly wider than the prothorax, the inner edge of the base distinctly grooved—immediately before the humeral angle—to receive the hind angles of prothorax; humeral angle rounded; epipleural fold narrow, abruptly expanded at the shoulders; legs slender; femora elongate; tarsi elongate, slender, the 1st joint of the hind pair longer than the two following united.

Of all the described species of *Toxicum* this genus most resembles *T. cornutum*, Fisch.; but it is abundantly distinct by the shorter and differently formed head, the eyes contiguous to the prothorax, and differently formed above, the longer, squarer, and much narrower prothorax, the epipleural fold abruptly expanded at the shoulders, the longer and thinner antennæ, and the very elongate femora.

♂ unknown.

EPITOXICUM HAPLANDROIDES, *sp. n.*

♀. Narrow, elongate; chocolate-brown, opaque; front concave, studded with large punctures, the punctuation on the sides and epistoma smaller and shallower; prothorax closely studded with deep, round punctures; scutellum indistinctly punctulate; elytra very closely and irregularly seriate-punctate, the seriate arrangement being little more than indicated, especially at the sides; the intervals very narrow, sub-convex, and more or less confluent; flanks of prothorax and sterna not closely punctured, the punctures large; epipleural fold impunctate; abdomen and legs finely, and not very closely, punctured; legs and abdomen dark chestnut-brown, shining.

Length, $3\frac{1}{2}$ lin.; width of elytra, $1\frac{1}{2}$ lin.

Hab.: East India; one example.

This species has a sufficiently general resemblance to *Haplandrus femoratus* to justify its title.

MEGALOPHRYS WATERHOUSII, *sp. n.*

Oblong, depressed, brownish-black, slightly shining; mandibles robust, convex, almost entirely visible, straightly produced from the base for about half their length, then bent rectangularly inwards towards each other, deeply and obliquely notched at apex; labrum almost entirely concealed by the mandibles, the sides lodged in the apical notch of the mandibles; head and prothorax strongly, but not very closely (on the prothorax) punctured; middle lobe of the former (epistoma) large, rounded in front, without trace of a central apical tooth; lateral lobes (antennary orbits) large, laterally prominent, sub-angulate; supra-orbital carina sharp, very distinct; eyes rather prominent, transverse, coarsely granulate, narrowly notched behind; prothorax transverse, broadly arcuate-emarginate in front, and wider than at the base; sides strongly rounded, strongly incurved posteriorly; hind angles acute, outwardly directed; lateral edges strongly thickened; base feebly bisinuate, margined throughout; front angles depressed, sub-acute; scutellum small, convex, narrow, lobiform; elytra depressed, considerably wider at base than base of prothorax; base rather strongly emarginate, and having a thickened border extending nearly to the scutellum; shoulders rounded, a slight but distinct depression within the humeral angle; epipleuræ marked off from the sides by a keel-like elevation—strongest near the shoulder, and gradually dying out towards the apex, narrow, vertical—except from near the apex, and concave in the middle portion; epipleural fold, broad at the shoulder (mounting to the humeral angle), thence narrowed, and continuing of nearly equal width to the apex, becoming gradually vertical behind, the apical portion visible from above; on each elytron eight rows (besides two on the epipleuræ) of rather large, round, sub-approximate punctures, smallest at the base, somewhat irregular at the apex, the 7th and 8th rows not reaching the shoulder; intervals nearly flat, not visibly punctured, except at the base and by the scutellum, where are a few unequal scattered punctures; under-side and legs brown-black, shining; lateral margins of the flanks of the prothorax smooth, the remainder, and the pro- and mesosterna, closely impressed with deep, round punctures; metasternum and abdomen sparsely impressed with still larger and deeper punctures; prosternal process rather wide, bent down behind the coxæ, the end a little produced and slightly recurved, bisulcate, the margins thickened, the middle costa very narrow; mentum thinly clothed with long yellowish hairs; throat and prosternum much more densely clothed with similar hairs; legs strongly compressed; lower edge of femora distinctly emarginate just before the apex; tibiæ elongate-triangular, the outer apical angle (especially to the anterior) acute; antennæ, palpi, and tarsi, dark ferruginous.

Length, $5\frac{1}{4}$ lin.; width of elytra (behind the shoulders), 2 lin.

Hab.: Valdivia; one example.

POLPOGENIA LAGLAIZII, *sp. n.*

Of the same form as *asidioides*, but partly naked, black, shining on the elytra; labrum very deeply notched at apex; epistoma deeply triangularly notched at apex; mandibles broadly truncated, and without any trace of notch, or cleft, at apex; head

and prothorax studded (but not very closely) with small tubercles, most numerous at the sides of the latter, from each of which arises a short, reddish, setose hair; interstices at the sides (and less perceptibly at the base) thinly clothed with very minute, pale, scale-like hairs; costæ and elevated reticulations on the elytra similarly disposed as in *asidioides*, but thicker, more elevated, strongly tubercled, naked, the tubercles thereon alone putting forth a short, setose, reddish hair; intervals more or less distinctly rugose, not closely tubercled, closely minutely granulose; a broad space on the middle, and the epipleuræ, naked, the rest more or less thickly clothed with a short, cinereous, squamose pubescence; under-side sparsely studded with small tubercles, from each of which arises a short, yellowish, decumbent, setose hair; the interstices more or less thickly (most on the prosternum), clothed with a minute, pale golden, squamose pubescence.

Length, $6\frac{1}{2}$ — $7\frac{1}{4}$ lin.

Hab.: Rufisk (Cape Verde), W. Coast Africa.

We owe the discovery of this species to M. Leon Laglaize, to whom I dedicate it.

The deeply notched labrum and epistoma, the mandibles entire at apex, and the semi-nude upper surface, will readily serve to separate this species from *P. asidioides*.

DELOGNATHA BREVICORNIS, *sp. n.*

Smaller than *D. Lacordairii*, the eye-orbits more prominent, not oblique, standing out at right angles to the sides of the head, not auriculiform, simply indented or concave at the apex; antennary orbits not produced in front into a long, conical tubercle; epistoma distinctly emarginate in front; labrum much shorter, and emarginate at apex; mandibles shorter, broader, backwardly (as well as inwardly) curved; having a large blunt tooth, at the middle of the inner side, to each mandible, but largest and most distinct (when viewed from above) to the left mandible; the inner apical tooth not continuous with the side; the outer or upper edge semi-circularly emarginate; the mentum has not that well-defined, sub-triangular convexity on the outer face, and the sides are much more narrowly foliaceous, or attenuate; antennæ much shorter, the three last joints relatively larger and broader, and forming a more abrupt club; punctures on head and prothorax much stronger, less numerous; sides of prothorax anteriorly a little more rounded, the lateral reflexed margins narrower, very strongly crenulate, almost dentate; elytra more strongly punctate or crenate-striate, the intervals more convex; prosternal process not compressed nor carinate behind; under-side more coarsely punctured; sides of abdomen rugosely punctured.

Length, $3\frac{1}{4}$ lin.

Hab.: Espirito Santo; one example.

A very distinct species; the eyes and their orbits standing out at right angles to the sides of the head (like two short cylinders) and the simple, rounded antennary orbits will, at a glance, serve to distinguish this species from *Lacordairii*. In both species the intervals on the elytra are impunctate.

DELOGNATHA PUNCTICOLLIS, *sp. n.*

Very near the preceding; the mandibles are still shorter and more recurved, the tooth at the middle of the inner margin is more acute; the eyes, with their orbits, are conical, the orbit being reduced to a mere triangulate plate, placed behind the eye (like a prolongation of the cheek), which is partially divided by it; the mentum is of the same form as in *Lacordairii*, and there is a similar well-defined triangulate convexity occupying the middle of its outer face; the intervals on the elytra are still narrower and more convex; the rest as in *D. brevicornis*. Length, 3—3½ lin.

Hab.: Brazils; three examples, captured by the late Rev. H. Clark.

As in all the other species of this genus, the colour (where a series of examples has been obtained) is either of a deep shining black, or dark ferruginous.

DELOGNATHA BUCKLEYI, *sp. n.*

Broader and less convex than any of the other species of the genus; mandibles longer and much narrower than in those preceding, the upper (outer) edge lightly, and not at all arcuately, emarginate, the inner edge not toothed, the three apical teeth long, acute, the inner one continuous with the side; labrum large, prominent, quadrate, apex squarely truncated; mentum concave on the outer face, with an oblique elevated line near each side, not extending to the base; epistoma prominent at the middle of the anterior border; antennary orbits gibbous, rounded; eyes large, prominent, slightly transverse, their margins entire; antennæ rather long, pilose, the three last joints strongly perfoliate, the last large, rounded; head, except on the disc, rather coarsely punctured; prothorax strongly transverse, quadrate, all the angles rounded, lateral margins rather narrow, reflexed, entire at their edges; very finely and sparsely punctured, the punctures strongest and closest at the sides; elytra rather finely punctate-striate, the punctures approximate, rounded, the intervals broad, nearly flat, and with a few widely scattered punctures.

Length, 3½ lin.

Hab.: Ecuador; four examples, captured by Mr. Buckley.

A very distinct species, and the most degraded form in the genus, the eyes having lost all trace of a projecting orbit, their margins being entire.

I do not know *D. auriculata*, Lacordaire, but it must have sharply tubercled antennary orbits, as in *Lacordairii*, since this character is given, without any qualification, in the generic formula; and the intervals on the elytra are stated to be distinctly punctured:—two characters quite at variance with any of the foregoing species.

Of *D. Lacordairii*, (Dej.) Lacord., I possess the two typical examples, formerly in Lacordaire's collection.

PENETA CERVUS, *sp. n.*

Near *P. Goudoti*, Lacord. ; mandibular horns stouter and still more strongly dilated at the apex, which is broadly emarginate, the inner edge having also an arcuate emargination close to the apex ; epistoma much longer and more inclined ; labrum much shorter ; eyes larger, extending completely up to the anterior outer angle of the head, the antennary orbits not forming a projecting angle in front of them ; front armed with a short, blunt horn ; head behind coarsely punctured ; prothorax coarsely but remotely punctured ; reflexed lateral margins broader ; anterior angles longer ; scutellum distinctly larger ; elytra more strongly punctate-striate ; prosternal process wider, the end broadly rounded, broadly concave down its length. The colour above is of an intense black ; the legs, antennæ, &c., are pitchy-ferruginous ; the abdomen bright ferruginous.

Length, $3\frac{1}{4}$ lines.

Hab. : Peru ; one example.

A very distinct species, which must be placed between *taurus* and *Goudoti* ; from the former it may at once be distinguished by the mandibular horns being dilated and notched at the apex ; the eyes being larger, and placed close to the anterior outer angle of the head ; the short labrum ; the differently formed prosternal process ; &c.

ÆTHALIDES, *g. n.* (*Nyctozoilides*).

Intermediate in form and structure between *Nyctozoilus* and *Onosterrhus*, but very different from both in the form of the prothorax : this is strongly transverse, apex deeply sub-angularly emarginate, front angles very prominent (extending beyond the anterior margin of the eyes), obtuse, directed forwards ; sides moderately, and somewhat parabolically, rounded, a very little sinuously incurved in front of the anterior angles (which makes them appear still more prominent), regularly, and not at all sinuously, incurved to the hind angles ; base broadly lobed in the middle, parabolically emarginate at each side up to the hind angles, the lobe more prominent than the angles, so that a straight line drawn across from angle to angle would leave a considerable portion of the lobe behind it ; hind angles sub-obtuse, not at all prominent, and not touching (in repose) the shoulders of the elytra ; lateral margins narrowly expanded, a little concave, the edges scarcely thickened, and very narrowly reflexed.

The mouth organs are as in *Onosterrhus*, and the sides of the submentum are similarly produced into a short, but distinct, tooth ; head very broad, somewhat convex (although having a slight longitudinal impression down the centre) on the crown ; antennary orbits obliquely rounded, a little reflexed ; epistoma short, its sides almost continuous with the antennary orbits, broadly—and very slightly arcuately—

truncated in front, the angles rounded, concave on each side within the angle, the suture strongly marked at each side, indistinct in the middle; eyes very narrow; outer joints of antennæ wanting, basal joints almost as in *Nyctozoilus*, the 3rd joint being relatively shorter; scutellum as in *Onosterrhus*, but having the triangulate depression on the elytra behind it, as in *Nyctozoilus*; elytra oblong-oval, very convex, abruptly declivous behind, shoulders broadly rounded, sides narrowly margined and reflexed; legs rather stout, compressed; sterna, &c., as in *Nyctozoilus*, except that the mesosternum is more deeply hollowed out in front, and the intercoxal process is relatively narrower; body oblong, sub-parallel, very convex, elytra closely and coarsely punctured.

ÆTHALIDES PUNCTIPENNIS, *sp. n.*

Black, slightly shining; head and prothorax finely and not closely punctured, the interstices minutely punctulate; disc of prothorax unequal by numerous irregular, more or less transverse, impressions, and an obscure oblong impression at each side near the margin; scutellum smooth, convex on the disc, ridged along the base; elytra rather coarsely, closely, and irregularly punctured, most strongly so on the middle, more finely at the sides, obsoletely so at apex; interstices convex, reticulate; a distinct trace of three longitudinal costæ on each elytron; under-side and legs deep black, moderately shining, finely (in parts minutely) and not closely punctured, the interstices (especially on the abdomen) minutely punctulate; flanks of prothorax (except the lateral margins) longitudinally rugose; abdomen finely, longitudinally—reticulately at the sides—strigose; prosternal process strongly margined at each side, the end produced in the middle and broadly rounded.

Length, $7\frac{1}{2}$ lin.; width of elytra across the middle, $4\frac{1}{2}$ lin.

Hab.: Western Australia; one example.

ONOSTERRHUS PUNCTULATUS, *sp. n.*

Intermediate in form between *O. marginicollis* and *opacus*; black, moderately shining; head finely punctured, antennary orbits a little reflexed, not at all thickened at the edges or channelled within; epistoma broadly truncated in front, the suture strongly marked, a depression at each side within the angle; prothorax strongly transverse, very distinctly (though minutely) punctulate, sides moderately, regularly, and not at all sinuously, rounded, a little more contracted anteriorly than posteriorly, the edges uniformly thickened, not distinctly channelled within; apex broadly arcuate-emarginate, front angles prominent, acute, directed forwards; base broadly truncated, a short sinus at each side in front of the angle; hind angles directed somewhat backwardly; scutellum less strongly transverse than in the other species, punctured; elytra oblong-oval, very convex, less abruptly declivous behind than in the other species, more shining than the prothorax, distinctly and uniformly—though minutely—punctured, and more markedly alutaceous (or reticulately streaked) than in any of the other species; lateral margins more strongly reflexed than usual, and entirely visible (from base to apex) when viewed from above; transverse gular furrow

(or line) obsolete; mandibles strongly bifid at the apex, the upper prong acutely produced; antennæ elongate, slender, perfoliate, outer joints distinctly longer than wide, the last of all twice as long as the preceding, sub-cylindric; maxillary palpi elongate, last joint rather large, sub-cultriform; under-side shining pitchy-black, legs, antennæ, &c., pitchy-red; intermediate tibiæ with a broad tomentose line beneath, from near the base; hind tibiæ longer and more slender than the four anterior, and with a very narrow tomentose line down their apical half, beneath; intercoxal process moderately produced, and rather broadly rounded, behind.

Length, $6\frac{3}{4}$ lin.; width of elytra across the middle, $3\frac{2}{5}$ lin.

Hab.: Western Australia; one example.

At once to be distinguished from all the other species by the distinctly (although minutely) punctured prothorax and elytra, the reflexed margins of the latter entirely visible from above; the strongly bifid (or apically cleft) mandibles; the elongate terminal joint of the antennæ, &c.

The species of this genus would seem to be very rare in individuals: possibly an extended series of specimens would somewhat modify our notions of the species.

TOXICUM CHEVROLATI, Montrouzier, Ann. Sci. Phys. et Nat. d'Agr. de Lyon, vii (pt. I), 1855, p. 30.

Since the publication of the July No. of this Magazine, I have had access to the description of the above named species, with which I think my *T. picticollis* may not improbably be identical. If so, the locality 'New Guinea' must be added to that given by Montrouzier (Isle Woodlark), and it may be expedient to add the following characters to that author's description:—

Labrum prominent, slightly rounded in front; head covered with rounded punctures, sinuous at the sides, front and vertex strongly concave; epistoma transversely convex, projecting beyond the sides of the front, its apex broadly, and slightly arcuately, emarginate: eyes completely, but very narrowly, divided, the upper portion nearly as large as the under: the horns arise from the inner margin of the eyes, they are rather short, robust, blunt, conical, slightly divergent at apex, and sloping a little forwards; antennæ with a strongly expanded, flattened club of three transverse joints; joint 9 longer than 10, cupuliform; 11 smaller than 10, rounded at apex; prothoracic flanks and sterna closely impressed with large, rounded punctures. The ♀ has the head less deeply concave above, sides less strongly sinuous, horns reduced to tubercles, sides of prothorax more broadly red.

15, Northampton Square, Leicester:

July, 1873.

DESCRIPTIONS OF THREE NEW SPECIES OF WATER-BEETLES
FROM CENTRAL AMERICA.

BY D. SHARP, M.B.

Among some water-beetles recently submitted to me by Mr. Belt for examination, I find the three following species, which are, I consider undescribed hitherto. There are also, among the other species in Mr. Belt's little collection, several specimens which probably belong to species still undescribed; and there are no doubt very many others yet to come from the prolific region of South America.

LACCOPHILUS APICALIS, n. sp.

Ovalis, testaceus, elytris fuscis, apice late, basi lateribusque minus discrete, pallide-signatis; abdomine oblique strigoso. Long. 2—2¼ lin.

Mas: tarsi quatuor anticis dilatatis, pulvillis elongatis; coxis posterioribus (apicem versus medio) strigis conspicuis.

Fem: tarsi simplicibus, strigis coxalibus multo subtilioribus.

About the size of the European *L. obscurus* (Schaum), but broader in proportion to its length. Head, with the antennæ and palpi entirely pale yellow. Thorax entirely pale yellow, but appearing dark at the base (to a variable extent), in consequence of the dark colour of the parts to which it is applied being visible through it, the base in the middle much produced and pointed. The elytra are of a smoky or fuscous colour, the extremity abruptly pallid, and the basal portions are also mixed with the pale colour; at the sides, an irregular narrow pale mark extends from the shoulder nearly half way to the extremity, this mark extending somewhat inwards at its termination; the whole of the upper surface is free from punctuation, but is extremely finely reticulate or coriaceous. The under-side is yellowish, the hind-body sculptured with widely separated oblique fine striæ. The legs are yellow; the hind tarsi broad.

Four specimens from Chontales have been communicated to me by Mr. Belt, two of which are males. The females shew a very remarkable peculiarity, joints 3—10 of their antennæ having each at their extremity a kind of thickening on the inner side; on examination with a high power of the microscope, this appears to me as if it were a secretion or excretion from the extremity of each joint. The males shew no trace of this.

COPELATUS SIGNATUS, n. sp.

Ovalis, suprâ niger, capite prothoracisque lateribus rufescentibus, elytris fasciâ basali, plagâ laterali, maculaque apicali testaceis; prothorace striis abbreviatis adperso, elytris striis undecim utrinque impressis; subtus piceo, prosterno antennis pedibusque rufis; coxis posterioribus abdomineque externe strigatis. Long. 3½ lin.

Mas: tarsi quatuor anticis articulis tribus basalibus dilatatis.

Very nearly as long as the European *Ziopterus agilis*, but broader, and more rounded in outline than that species. Head reddish, with indications of a dark mark on the middle. Thorax black, with the sides reddish, covered with distinct, short, fine impressions or striæ. Scutellum broad and short, smooth. Elytra black, a transverse band at the base, not quite reaching the suture, an elongate spot near the outside of each a little before the middle, and a spot on each at the extremity, yellow; each has eleven impressed lines, the distance between the 1st of these and the suture is not quite double the distance between the 1st and 2nd; the 2nd only extends about one-third of the way from the base to the extremity; the 4th, 6th, 8th, and 10th, are also much abbreviated, but reach half-way or more; each of the 1st, 3rd, 5th, 7th, and 9th reaches to the yellow apical spot, while the 11th is more abbreviated at the base. On the under-side, the head and posternum are yellowish, the hind-body pitchy, the breast blackish, the legs and antennæ reddish; the sides of the breast, and of the basal segments of the hind-body, covered with rather close fine striæ.

DINEUTES TRUNCATUS, n. sp.

Late ovalis, suprâ sericeo-chalybeus, elytris obsoletissime striatis, apice truncatis; subtus niger, pedibus posticis quatuor piceo-rufis, abdomine apicem versus piceo. Long. $7\frac{1}{2}$ —8 lin; lat. $4\frac{1}{2}$ — $4\frac{3}{8}$ lin.

Mas: tarsi anticis leviter dilatatis.

This is a broad species, with much rounded lateral outlines, and a silky blueish lustre on its upper surface; the elytra possess very obsolete traces of striæ, their extremity is truncate, and the truncate portion forms with the side an extremely obtuse angle, the suture is a little open at the extremity. The front legs are very long and slender, the under marginal line on the front femora is elevated some distance before the extremity, so as to form a kind of tubercle there, the front tibiæ are a little sinuate and very slender, the front tarsi narrow in the male; the mesosternum has a few obscure punctures on each side in front; the four hind-legs are reddish, their femora pitchy-red.

Chontales. I have not seen the female.

Eccles, Thornhill, Dumfries: May, 1873.

NOTES ON JAPANESE COCCINELLIDÆ.

BY GEORGE LEWIS.

The following is a list of *Coccinellidæ* from Japan determined by Mr. G. R. Crotch, before his recent departure to America. Types of 23 of the species are contained in my own collection, and 3 are added from other writers. Of *Scymnus*, there are apparently some 12 additional species at present undetermined. Mr. Crotch says of this family, when speaking of the island of Kiushiu and southern part of Nipon, "The fauna is evidently Indian rather than Siberian; only *C. 12-maculata* and *transversoguttata* occur in North America, while "*Thea cincta*, *Synonychus grandis*, *Chilomenes 4-plagiata*, and *Epilachna*

"28-*punctata* inhabit the Malay Archipelago. The species peculiar to Japan, exclusive of *Scymnus*, are very few. *Seven species are common to Western Europe, six of them being British.*"

I have added the localities in such species as do not appear to be generally distributed and common; and have marked * such as have been also found in China by myself.

1. *HARMONIA IMPUSTULATA*, L. (Motschoulsky).
2. *COCCINELLA 7-PUNCTATA*,* L. Typical specimens.
3. ,, *12-MACULATA*,* Gebl.
4. ,, *TRANSVERSOGUTTATA*, Fald. (Motschoulsky).
 var. *Sedukovii*, Muls.
5. ,, *AXYRIDIS*,* Pall.

Of my captures of this insect Mr. Crotch remarks as follows: "This fine series enables me to unite the numerous forms described by Mulsant and others under fifteen specific names, and even referred to five of that author's genera (*Harmonia*, *Anatis*, *Leis*, *Daulis*, *Lemnia*); the variations are precisely like those of *C. variabilis*, which *C. axyridis* resembles also in the presence of an apical fold in the elytra (not, however, constant)."

6. ,, *JAPONICA*, Crotch (*sp. n.*). Maiyasan, Hiogo; 2 specimens.
7. *CALVIA 15-GUTTATA*, Fab. (Mr. Saunders).
8. *ANISOCALVIA* (Crotch, *g. n.*) *14-GUTTATA*, L.
9. *ILLEIS CINCTA*, Fab.
10. *VIBIDIA 12-GUTTATA*,* Poda.
11. *LEIS 15-MACULATA*,* Hope: Nagasaki.
12. *SYNONYCHA GRANDIS*, Thunb.; Nagasaki, 3 specimens, August, 1869.
13. *PROPYLEA CONGLOBATA*, L.

Mr. Crotch remarks that the variations in this species (which also occurs in China) are unparalleled, some forms of it having been placed by Mulsant also in *Harmonia* and *Lemnia*.

14. *VERANIA DISCOLOR*,* Fabr.: Nagasaki.
15. *CHILOMENES 4-PLAGIATA*,* Sch.

This species extends even to Australia.

16. *CHILOCORUS TRISTIS*, Fald.

Common on fir trees. The colour is here very sharply defined.

17. „ *RENIPUSTULATUS*, Scriba.18. „ *NIGRITUS*, Crotch, (*sp. n.*). Nagasaki ; one specimen.19. *EPILACHNA 28-PUNCTATA*, Fab.20. *NOVIUS LIMBATUS*,* Muls.21. „ *JAPONICUS*, Crotch (*sp. n.*). Maiyasan, Hiogo.22. *PLATYNASPIS LEWISI*, Crotch (*sp. n.*). Maiyasan, Hiogo ; Shanghai (Deyrolle).23. *LOTIS SUBSTRIATUS*, Crotch (*sp. n.*).24. „ *PUNCTATUS*, Crotch (*sp. n.*).25. *CRYPTOGONUS ORBICULATUS*,* Schön.26. „ *JAPONICUS*, Crotch (*sp. n.*).

Alexandra Road, Norbiton :

July, 1873.

DESCRIPTION OF A NEW SPECIES OF *BRAHMÆA*, IN THE COLLECTION
OF THE BRITISH MUSEUM.

BY A. G. BUTLER, F.L.S., F.Z.S.

BRAHMÆA JAPONICA, *sp. n.*

Allied to *B. Certhia*, but much smaller, and altogether paler in colour, the ground colour being dirty-whitish, the yellow sub-costal streak which runs to below the third sub-marginal spot of primaries of a pale sulphur-yellow tint ; the spots in central area of primaries fewer in number and more distinctly ocellate ; the rounded central spot on internal area more rounded, shaded more like a ball with the light introduced in front instead of at the side, with only three spots across the centre, the two outside black, the central white ; the sub-marginal spots united and more deeply shaded externally ; the broad external margin spotted with ill-defined white ellipses, one behind each of the sub-marginal spots : secondaries with sub-marginal spots united as in *B. Certhia*, the margin white-spotted as in primaries ; central band divided exactly through the centre by a brown line ; slaty bands along nerves obsolete ; basal area paler ; body relatively shorter, the thorax redder ; bands on abdomen more distinct ; antennæ considerably longer.

Wings below altogether paler ; the blackish basal area restricted to a central band, very narrow on primaries ; basal area spotted here and there with dusky ; central band much broader ; transverse lines of disc more undulate ; outer margin bounded internally by a diffused white line ; legs clothed with ochreous instead of blackish-brown hairs.

Expanse of wings, 4 inches.

Japan (W. B. Pryer).

B. M.

DESCRIPTIONS OF THREE NEW SPECIES OF *RHOPALOCERA* FROM ANGOLA.

BY W. C. HEWITSON, F.L.S.

I have just received from Mr. Rogers 2333 butterflies in beautiful condition, collected by him during two months of hard work in the mountainous district of Angola, and from which I select the following species (there are several more that are new) for description. In this collection there are many specimens of several species (*Junonia Westermanni* amongst them) which have hitherto been very rare. It may be interesting to those who study the geographical distribution of insects to learn, that previous collections sent home by Mr. Rogers from the banks of the river Coanza contained very few butterflies which we have not already had from the Cape of Good Hope and Natal.

CHARAXES PYTHODORIS, *sp. n.*

Upper-side : ♂. Blue-black, crossed by a broad, common, pale blue band, increasing in breadth from the second branch of the median nervure of the anterior wing to the inner margin of the posterior wing, preceded on the anterior wing by a double series (and a single spot within the cell) of pale blue spots. Posterior wing with a sub-marginal series of minute pale blue spots : without tails.

Under-side : rufous, pale. The basal half of both wings crossed between the nervures by several dark blue lines, bordered (some on both sides) with pale blue. Anterior wing with a dark blue spot near the inner margin before its middle, and a bifid spot of the same colour near the anal angle, both bordered with pale blue. Posterior wing with a sub-marginal series of pale blue spots.

Exp. $3\frac{1}{2}$ inches.

A very distinct species, most nearly resembling *C. Cucuthis*, but in colour only on the upper side.

ACRÆA ROGERSI, *sp. n.*

Upper-side : ♂. Anterior wing semi-transparent, dark brown,

scarlet towards the anal angle, marked by several large black spots, one near the base below the median nervure, one in the middle of the cell, and another below this; crossed at the middle by two bands of three spots each, those nearest the costal margin united. Posterior wing scarlet, the base dark brown, marked by many darker spots, and bordered by five black spots; *a sub-marginal series of black spots*, the outer margin dark brown.

Under-side: as above, except that it is paler, and that the base of the posterior wing is tinted with carmine and green, and has the spots (eighteen in number) distinctly marked.

Exp. 3 inches.

Much like *A. Egina*, but distinguished from it and all the other species of *Acræa* by the sub-marginal spots of the anterior wing.

APATURA CLEOCHARIS, *sp. n.*

Upper-side: ♂. Dark brown. Anterior wing with the base red-brown, a spot in the cell bordered inwardly with black, a large spot below this deeply indented on the basal side and bordered with black; crossed at the middle by three spots, the first of which (near the costal margin) is trifold, all rufous-orange; two minute white spots near the apex. Posterior wing rufous, paler near the costal margin, protruded at the anal angle, the base rufous-brown, the outer margin dark brown; a sub-marginal series of four black spots, a single black spot above these near the abdominal margin.

Under-side: very pale, clouded with lilac-brown towards the outer margins; both wings with a sub-marginal black line, bordered above with paler colour. Anterior wing as above, except that there are two minute black spots in the cell, a large black spot filling the indentation described above, a second black spot between the median nervules beyond the middle. Posterior wing undulated with rufous-brown, with the costal margin curved outwardly near the base and apex and inwardly at the middle, and marked by small black linear spots; a small spot near the base, and a linear spot from the costal margin dark brown, a larger central spot of lilac and brown; the black spot above the anal angle has a centre of pale blue.

Exp. $1\frac{5}{16}$ inch.

This species would at first sight be taken for a *Vanessa*. The eyes are, however, smooth; and I have, I think, fixed its true position, near *A. Ionia*.

Oatlands, Weybridge :
July, 1873.

DESCRIPTIONS OF NEW SPECIES OF AFRICAN *LEPIDOPTERA*.

BY CHRISTOPHER WARD, F.L.S.

*(continued from vol. ix, p. 210).**ERONIA ZELINDA*, n. s.

♂. *Upper-side*: fore-wing white, with anterior and outer margin bordered with black, broad at the apex, and narrowing down to the anal angle. Hind-wing entirely white.

Under-side: fore-wing clear white and lustrous, apex tinged with brown. Hind-wing greenish-white, lightest at inner margin and with numerous small waved lines of light brown; a small spot at the end of cell.

Expanse, $2\frac{1}{4}$ inches. Habitat, Ribé, East Africa; Angola.

This species seems well defined from *E. Buqueti* by the black margins of anterior wings, which are very constant in a series of specimens which I have received, and most decided in those from Ribé.

ACRÆA CYDONIA, n. s.

Upper-side: both wings tawny-yellow. Fore-wing: apex, outer margin, and upper margin from the base to a little beyond the cell, where it widens, bordered with brown. Hind-wing: outer margin brown, broadest at the anal angle, and with radiating lines inwards; close to the base three small brown spots.

Under-side: as upper, but lighter in shade, and the radiate markings continued round the outer margin of both wings; two small black spots within the cell of hind-wing, two above and three below it, all near the base.

Expanse, 2 inches. Habitat, Camaroons, Angola.

ACRÆA SAMBAYÆ, n. s.

♂. *Upper-side*: fore-wing lustrous and transparent; nervures and outer margin shaded with brown; cell, and basal half of wing, red. Hind-wing bright red, shading to yellow at the inner margin; outer margin with triangular black spots at the end of each nervure; from centre of upper margin to centre of inner margin a curved line of seven black spots, largest near the inner margin; base with five black spots.

Under-side: as above, but the red replaced by a light pink.

Expanse, $2\frac{1}{2}$ inches. Habitat, Madagascar.

EURYPHENE PLUTO, n. s.

Upper-side: both wings dark brown, crossed midway from below the cell of the fore-wing to inner margin of hind-wing by a clear yellowish-white band, a narrow line of the same colour following outer margins, and beyond the cell of fore-wing a diagonal broken line of spots.

Under-side: light brown, and the yellowish markings as above, but replaced with clear white, and with two additional white lines near inner margin. Following the outer margin of both wings, a line of black spots edged inwardly with white.

Expanse, $1\frac{3}{4}$ inches. Habitat, Camaroons.

In size and form allied to *E. Elabontas*, but quite distinct in markings. These two species seem to be the types of a new genus.

MYCALESIS IBITINA, n. s.

Upper-side: both wings brown, and bordered outwardly with a distinct line of darker brown; fore-wing with an ocellus near the apex, black, edged with orange, and containing two white eyes placed vertically. Hind-wing with two ocelli at the anal angle, black, bordered with orange and with one white eye.

Under-side: fore-wing as above, but a lighter brown, especially round and below the ocellus. Hind-wing with numerous waved markings of darker brown mingled with lighter brown, and the ocelli faintly showing.

Expanse, $1\frac{1}{2}$ inches. Habitat, Madagascar.

(To be continued.)

NOTES ON CORIXA.

BY F. BUCHANAN WHITE, M.D., F.I.S.

When dissecting some *Corixæ* a year or two ago, I found that the males of certain species were provided with a curious structure, of which I can find no mention in any of the works within my reach.

This structure (the precise function of which I do not clearly understand, but which no doubt is part of the genital armature) is situated on the posterior margin of the upper-side of the sixth segment of the hind-body, and consists of a chitinous plate attached to a short pedicle, and provided with rows of closely set teeth, resembling the teeth of a comb. The free ends of the teeth are directed towards the mesial line of the animal, and the rows overlap each other more or less. The plate is more or less convex, and varies in shape in the different species, as well as in the number of the rows of teeth. In some species the rows are quite regular, in others more or less irregular, sometimes not extending across the plate, and interposed half way between two of the rows; sometimes irregular in regard to the height of the teeth composing them. When there is irregularity, it is most manifest in the apical rows. The size of the plate is not always commensurate with the size of the animal.

As this structure bears some resemblance to a "curry-comb," it may be styled (for want of a better term) the "strigil" or "strigiliform organ."

Though, from other pursuits, I have not yet had time to investigate this subject as much as I could wish, I think it advisable to

direct attention to it, as the organ in question seems likely to prove of use in acquiring a knowledge of the distinction of species in the genus *Corixa*.

In the males of this genus the four last segments of the hind-body are asymmetrical and irregular. In the majority of species, the asymmetry is on the right side, in a few it is on the left, and the strigil has a corresponding situation.

The results of my investigations are as follows:—

- C. Geoffroyi*, strigil elongate-oval (breadth much greater than length), with about ten rows of teeth, some of the rows irregular.
- C. Panzeri*, shape somewhat as in *Geoffroyi*; six rows.
- C. lugubris*, minute, quadrately circular, with about twelve very narrow rows.
- C. Stali*, sub-triangular, with three broad rows.
- C. hieroglyphica*, smaller than in *Stali*; ob-ovate, with three broad rows.
- C. Sahlbergi*, large (perhaps larger in proportion to the size of the animal than in any other species), elongate-oblong (breadth *much* greater than length), sinuate, with six or nine irregular rows.
- C. venusta*, sub-quadrate, with five rows, some rather irregular.
- C. limitata*, triangular, with five rows.
- C. nigrolineata*, quadrately oval, with six rows.
- C. striata*, large, elongate (breadth much greater than length), sub-reniform, sinuate, with about fifteen irregular and greatly overlapping rows.
- C. Falleni*, minute, narrowly pyriform, with four rows.
- C. distincta*, small, sub-quadrate, with five rows.
- C. mæsta*, sub-circular, with about five somewhat irregular rows.
- C. Fabricii*, oval, with about six rather broad rows, three of which are rather irregular.
- C. Scotti*, pyriform, with five rows.
- C. fossarum*, pyriform, with six rows; apical row very short.
- C. Douglasi*, small, sub-circular, with about six very irregular eroded rows.
- C. Sharpi*, somewhat circular, with eight broad rows.
- C. intricata*, large, somewhat circular, with about sixteen rather narrow and very irregular rows.
- C. alpestris*, small, sub-quadrate, with four or five rows, one of which is irregular.

In the species of the *præusta* group there is no strigil, but the intromittent organ is furnished with many strong recurved spines. These spines are present in the other species, but in this group seem to attain a much greater development. In *Cymatia*, there is apparently no strigil.

The genus *Corixa* seems capable of being broken up into several smaller genera or sections. The following is an attempt to do so.

CALLICORIXA.

Head not wider than pronotum; eyes touching (or nearly so) posterior margin of head. Pronotum rastrate, with 8—10 pale lines. Clavus and corium more or less rastrate. Anterior legs more or less marked with black (or brown) spots. Middle tibiæ black (or brown) at apex. Posterior metatarsus more or less black at the apex. Palæ of male compresso-carinate at back. Claws of middle legs about the same length as tarsi. Posterior segments of hind-body in male asymmetrical to right. No strigil. Body of medium size.

C. præusta, Fieb.; *C. socia*, D. and S.; *C. Boldi*, D. and S.; *C. Wollastoni*, D. and S.; *C. sodalis*, D. and S.; *C. cognata*,* D. and S.; *C. concinna*, Fieb.

MACROCORIXA.

Head not wider than pronotum; eyes touching (or nearly so) posterior margin of head. Pronotum smooth, with numerous (12—20) transverse unequal pale lines; scarcely any central keel; sides obsoletely or slightly margined. Elytra smooth, regularly irrorated with black lines. Anterior tibiæ in male with a distinct spur; palæ in male oblong, elongate. Posterior metatarsus broad. Posterior segments of hind-body in male asymmetrical to left. Strigil conspicuous, placed on left side. Body large.

(*Corisa*, Sectio I, *Macrocorisa*, Thomson, Opusc. Ent., fasc. 1, 27).

C. Geoffroyi, Leach.; *C. Panzeri*, Fieb.; *C. affinis*, Leach.

CORIXA.

Head not wider than pronotum; eyes touching (or nearly so) posterior margin of head. Pronotum rastrate, with less numerous (5—10) transverse lines; posterior angles clearly distinct; shortly or longly keeled. Elytra with clavus and corium, or clavus alone, rastrate. Claws of middle legs shorter or longer than tarsi. Posterior segments of hind-body in male asymmetrical to right. Strigil placed on right side. Body of medium or small size.

C. lugubris, Fieb.; *C. Stali*, Fieb.; *C. hieroglyphica*, L.-Duf.; *C. Sahlbergi*, Fieb.; *C. Linnæi*, Fieb.; *C. semistriata*, Fieb.; *C. venusta*, D. and S.; *C. limitata*, Fieb.; *C. decora*, D. and S.; *C. dubia*, D. and S.; *C. perplexa*, D. and S.; *C. nigrolineata*, Fieb.; *C. striata*, L.; *C. Falleni*, Fieb.; *C. distincta*, Fieb.; *C. mæsta*, Fieb.; *C. Whitii*,

* The names *borealis* and *cognata* have already been used for species of *Corixa*, but *borealis*, Dahl., was (*vide* Douglas) only a MS. name, and *cognata*, Fieb. = *carinata*, Sahlberg (*teste* Sahlberg). *Borealis*, Dahl., is given as a synonym of *præusta*, Fieb., in Puton's Catalogue.—F. B. W.

D. and S.; *C. Fabricii*, Fieb.; *C. borealis*,* D. and S.; *C. fossarum*, Leach; *C. Scotti*, D. and S.; *C. Douglassi*, D. and S.; *C. Sharpi*, D. and S.; *C. intricata*, D. and S.

OREINOCORIXA.

Head wider than pronotum; face excavated in both sexes; eyes not reaching posterior margin, which is raised. Pronotum short, with a conspicuous long anterior keel; rastrate. Palæ in both sexes narrow, long-cultrate. Middle legs with tarsi as long as tibiæ. Claws rather shorter than tarsi. Posterior segments of hind-body in male asymmetrical to right. Strigil placed on right side.

(? Thomson, l. c., p. 39, Sectio III, Glænocorisa).

C. alpestris, D. and S.

CYMATIA, Flor.

Head wider than pronotum; face excavated in male; eyes not reaching posterior margin. Pronotum smooth, short, more or less keeled, scarcely angled and without transverse lines. Anterior tibiæ sub-continuous with the tarsi. Elytra not rastrate; wings shorter than hind-body, or absent. Posterior segments of hind-body in male asymmetrical to right. No strigil.

C. Bonsdorffi, Sahlb.; *C. coleoprata*, Fab.

(To be continued).

BRITISH HEMIPTERA—AN ADDITIONAL GENUS AND SPECIES.

BY JOHN SCOTT.

Section 9.—CAPSINA.

Family 7.—PHYLIDÆ.

Genus *LOXOPS*, Fieb.

Slightly elongate, narrow, almost parallel.

Head short, very much deflected from the base to the clypeus. *Crown* transversely slightly convex. *Face*: central lobe convex, longer than the side lobes. *Antennæ* shorter than the body, inserted in a line with the lower margin of the eyes; 1st joint stout, about as long as the head, base narrow, inner margin convex, wider before the middle than at the apex; 2nd slightly clavate, fully three times longer than the 1st; 3rd about two-thirds the length of the 2nd; 4th short. *Eyes* large, oval, placed obliquely. *Rostrum* reaching to the 3rd pair of coxæ.

Thorax: *pronotum* trapeziform, about as long as the anterior margin; posterior margin nearly twice the width of the anterior; the latter with a slight narrow collar, behind which are two large somewhat depressed callosities, beyond these the lateral margins are concave. *Scutellum* large, equilateral, sides slightly convex. *Elytra* longer than the abdomen. *Legs* moderately long; *thighs* stoutish; *tarsi*: 3rd joint of the 3rd pair about as long as the other two.

Species 1.—*Loxops coccineus*, Westerh.*Capsus coccineus*, Meyer, Caps., 75, 48, t. iv, fig. 5.*Loxops coccineus*, Fieb., Europ. Hem., 287.

Clear ochreous-yellow, thickly clothed with white or very pale yellow semi-depressed hairs. *Elytra* with numerous pale roundish spots. *Cuneus*: apex broadly orange-red. *Membrane*: cell nerves red.

Head pale ochreous-yellow. *Antennæ* yellow, 1st joint red, clothed with erect black hairs. *Eyes* red. *Rostrum* yellow, apex brown.

Thorax: *pronotum* pale ochreous-yellow, lateral margins from in front to behind the callosities broadly blackish, from thence to the posterior angles broadly reddish and somewhat sparingly and coarsely brown-punctured, posterior margin slightly concave across the base of the scutellum. *Scutellum* pale yellow, with a somewhat indistinct darker streak on either side, extending downwards from the faint transverse channel; apex narrowly fuscous. *Elytra* clear ochreous-yellow, thickly clothed with white or very pale yellow semi-depressed hairs. *Clavus* pale ochreous-yellow, with a few minute somewhat indistinct orange-reddish punctures. *Corium* inclined to orange-reddish, with several roundish ochreous-yellow spots disposed somewhat symmetrically, the spots irregular in size; anterior margin fuscous-black, the colour becoming somewhat wider towards the apex, where it joins an irregular, transverse, fuscous-black band, having its upper margin in a line with the apex of the clavus: this band is distinctly black-punctured. *Cuneus* pale yellow, base narrowly and somewhat irregularly, and apex broadly, orange-red. *Membrane* pale fuscous, iridescent, cells pale; cell nerves red, greater cell nerve exteriorly with a narrow faint reddish margin. *Sternum* pale yellow. *Legs* yellow; *thighs*—3rd pair at the apex reddish; *tibiæ* and *tarsi* yellow, apex of the 3rd joint of the latter black.

Abdomen beneath, yellow.

Length, 2 lines.

The insect from which this description has been made is not so bright in coloring as that described by Fieber, and much less so than that of the figure given by Meyer in his 'Capsina.' This I attribute to the capture of the creature shortly after its exit from the pupa state, and before it had acquired the full richness of its attire. There is also a V-shaped band extending across the clavus to the apex of the scutellum; but, on raising the elytra, I find that this is merely caused by the shining through of a portion of the upper part of the body.

A single specimen of this pretty species was taken at St. Albans last year, by the Rev. T. A. Marshall (as he believes, by sweeping). It seems to be exceedingly scarce on the continent, occurring singly, and, according to a notice of its capture recorded in the Mittheil. der Schweiz. Ent. Ges., vol. ii, p. 27, its time of appearance is about the middle of July.

As I cannot find any description by Westerhauser, I suppose Meyer, who quotes him, must have received the insect from him with the name in M.S.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(continued from p. 38).

Coccyx finitimana, (Gn. MS.) Wilk.—Altered by Dr. Wocke to *nemorivaga*, Tengs. (1847), and in this correction Prof. Zeller concurs. Specimens sent by him are rather smaller, and not so sharply marked as ours, but there appear to be no distinctive characters, and the habit of *nemorivaga* of occurring on high mountains is confirmatory.

In Mr. Doubleday's list this species is made synonymous with *tædella*, Linn., which name, however, is considered by German entomologists to belong to a subsequent species.

Coccyx distinctana, (Bent. MS.) Wilk.—This name is sunk by Dr. Wocke as a synonym of *proximana*, H.-S., but I think incorrectly. Zeller considers *proximana*, H.-S., to be merely a variety of our next species (*hyrciniana*, D. L.), and this a specimen sent by him certainly confirms, but he also thinks that *distinctana* is a variety of that species with unusually dark markings. With this I cannot agree, since the fore-wings in *distinctana* are very long, and the narrow, first pale fascia is further from the base than in that species. Wilkinson, however, although he gives an excellent description, seems to have overlooked these points.

A second locality for this species has been found, Lord Walsingham having taken it in West Norfolk.

Coccyx hyrciniana, Uslar.—Dr. Wocke and Professor Zeller agree in referring this species to *tædella*, Linn. (Clerck), and have substituted this name for *comitana*, Schiff., Tr., under which it is commonly known in Germany. As Linné's name is long anterior, it will be necessary for us to make a similar correction, but in our case the confusion is slightly enhanced from the name having already been applied in our collections to *finitimana* (*nemorivaga*).

M. Jourdheuille says:—"larva between leaves of fir and pine, under "a web." I have, however, found the larva *laying down* the leaves of spruce fir parallel with the shoot, and spinning its web between them.

Capua ochraceana, Steph.—Dr. Wocke alters this to *favillaceana*, Hüb., and places it next to *Amphysa prodromana*.

Cartella bilunana, Haw.—According to M. Jourdheuille's calendar, the larva of this species feeds in the catkins of alder as well as birch.

Hedya Paykulliana, Fab.—Dr. Wocke corrects this to *ramella*, Linn., and in this he is confirmed by Zeller. This is another inconveniently complicated alteration, the name having been in use (in error) for a species of *Anchylopera*. This correction appears in the supplement to Mr. Doubleday's list. M. Jourdheuille says:—"larva in "buds of birch."

Hedya ocellana, Fab.—M. Jourdheuille says:—"larva in rolled "leaves at the tops of alders." Zeller remarks that alder-fed specimens are often very dark. and says it also feeds on oak.

Wocke erects this species into a separate genus—*Tmetocera*, Ld.

Hedya lariciana, Zell.—Recorded as British in the Entomologist's Annual for 1866, p. 166, but without description, which I therefore append:—

Head and palpi brown, dusted with white, antennæ brown, thorax greyish-brown, with the dorsal scales tipped with white. Fore-wings white, dusted with grey towards the costa, basal blotch dark grey, reticulated or dappled with whitish, its exterior margin nearly straight, but emitting a tooth from the middle. Beyond, on the costa, is a small, grey, triangular blotch, with flattened apex. On the dorsal margin near the anal angle is a narrow, upright, dark grey triangle, and beyond it the whole hind margin is clouded with grey. Cilia grey, dusted with white. Hind-wings pale greyish-brown, darker in the female. Occasionally a specimen is found in which the fore-wings are entirely suffused with grey. Distinguished from *ocellana* by its narrower wings, the blotch in the middle of the costa, and the straighter margin of the basal patch. The larva feeds upon larch.

This species has been taken and bred in different parts of the country, and is apparently not scarce, but difficult to obtain in the perfect state, from its habit of hiding in trees. In June, 1871, during a storm of wind, the Rev. E. N. Bloomfield and I found it commonly on palings at Brandon, the wind having forced it out of the trees; but I have had great difficulty in finding any there in calm weather.

Hedya simplana, F. v. R.

Hedya dealbana, Fröl.—Dr. Wocke considers this identical with *incarnana*, Haw., an earlier name. This does not seem to be satisfactorily proved. According to M. Jourdheuille, the larva feeds on poplar and willow.

The dark variety of this species, so common with us, seems to be but little known in Germany. Heinemann described it as distinct under the name of *obscurifasciana*.

Hedya neglectana, Dup.

Hedya Servillana, Dup.—This unfortunate species has been bandied about into many genera; Wocke includes it in *Semasia*.

Prof. Zeller tells me that its larva feeds on the woolly-leaved sallows, and it is among these that I have always taken it. M. Jourdheuille, however, says in his calendar:—"larva in a swelling in the branches of sallows, hibernating and becoming a pupa therein." This requires investigation.

Hedya aceriana, Dup.—I have reared this species from larvæ inhabiting the *leaf-stalks* (petioles) of large leaved poplars, such as *Populus balsamifera*. They hollowed out the petiole, leaving a small hole at the base of the leaf through which to expel their frass. This does not accord with Wilkinson's account, nor with that of M. Jourdheuille, who says:—"larva in buds of poplar, which they hollow." But I find that it also mines the *shoots* of the Canadian poplar.

Hedya pauperana, Dup.—This rare species seems very secret in its habits. Prof. Zeller suggests that it probably creeps up the rose bushes after dark.

Hedya trimaculana, Donovan.

Hedya minutana, Hübn.—Prof. Zeller says "to be beaten from "*Populus italica* and *alba* in rainy weather or after sunset."

Steganoptycha nævana, Hübn.—This species does not seem on the continent to be confined to holly. Prof. Zeller says it occurs among sloe, and M. Jourdheuille that it is polyphagous, sometimes feeding in pear blossoms.

Steganoptycha geminana, Steph.—Dr. Wocke sinks this as a variety of *nævana*, and Prof. Zeller tells me that he is unable to find any distinguishing characters. Wilkinson, however, points out certain distinctions, and to me it has always seemed that the fore-wings were shorter than in that species. The larva feeds in the tops of *Vaccinium myrtillus*, drawing the leaves together, even uniting those of different branches, and does not seem to burrow within the shoot at all. The moths are produced earlier in the summer than *nævana*, and, being pretty constant in form and colour, may safely, I think, be regarded as distinct from that species.

Steganoptycha ustomaculana, Curt.

(To be continued).

A species of Harpalus new to Britain.—During a short visit to Braemar and the neighbourhood, in the early part of this summer, I had the pleasure of taking *Harpalus quadripunctatus*, Dej., a species not hitherto, I believe, recorded as occurring in Great Britain. It is closely allied to *H. latus*, L., but is rather longer, and of more parallel form. Its thorax is shorter proportionally, without the testaceous edge, and it has considerably deeper foveæ at its base, which is more obsoletely punctured. On the apical half of the third interstice of each elytron are two or three punctures.

H. 4-punctatus appears to be widely distributed on the continent, occurring in France, Switzerland, Germany, Sweden, and Lapland. I obtained the insect by turning over stones near the edge of a small loch high up on a mountain, at some distance from Braemar.—THOS. BLACKBURN, Greenhithe, Kent: July 17th, 1873.

[Thomson, Skand. Col., i, p. 280, persists in adopting Gyllenhal's name of *seriepunctatus* for this insect, in spite of that author having, as Schaum points out in Ins. Deutschl., i, p. 596, confused it with the prior *seriepunctatus* of Sturm (= *impiger*, Dufts.). But Schaum is clearly wrong in endeavouring to reconcile Gyllenhal's description with the latter insect; the acute angles of the thorax of *impiger* are alone enough to prove this. As regards mere elytral punctuation, one of Mr. Blackburn's specimens kindly given to me, has two punctures on the third right interstice, and four on the left.—E. C. R.]

Note on habits of ♀ Drilus.—This morning, on turning over a lump of chalk in the "Warren," and thereby exposing a moist spot and letting in the sun and air, I caught a glimpse of about four segments of a receding tail in the orifice of a snail-shell, and immediately thought—"That's ♀ *Drilus*." And such proved to be the case. The shell was besmeared with a glutinous substance similar in colour to, but rather more fluid than, liquid-glue. This fluid was of sufficient quantity to cover the tips of my two fingers and thumb as I grasped the shell; but it speedily dried, and in a few minutes the shell was to all appearance clean, sun-dried (but not blanched), and uninhabited. Even by placing the shell in the forefinger and thumb between the eye and the sun, no trace of any foreign substance was visible—the body of the insect, though bulky, being quite as transparent as the material shell. Had I not seen the four segments, *Drilus* would have escaped. Notices of the occurrence of the female of this Malacoderm have been registered in late years, but perhaps this note may not be superfluous in drawing attention to the habits of the species, since so little has been recorded (in England at least*) concerning its larvæ and earlier stages. To find the ♀ imago, I think empty snail-shells from the locality where the insect is known to occur, should be pierced at the spiral end; as, after I reached home it took me several minutes to judiciously break the shell sufficiently to dislodge the specimen; and, after dislodging it, it endeavoured several times to regain its tenement—crawling four or five inches over a spread newspaper. The example I found was quite a stray one, far in the "Warren," where the male by sweeping is very rare—or rather used to be formerly—for I have not looked for it this season. I cannot explain the origin of the brown sticky fluid; yet, should it be an element ejected by the female when disturbed, or in any way connected with its existence, it may be a guide to future captures.

* See Bellevoye, Ann. Soc. Ent. Fr. (4) x, Bull., p. xxxv, Desmarest, *ibid.* p. xxxvi, De Marseul, Nouv. et faits, No. 14, and Abeille de Perrin, *ibid.*—E. C. R.

Entomologists looking for the ♀ may perhaps obtain it by collecting snailless shells from moist situations, at this season—the developed ♀ being most likely not more attached to the *living* snail, than the male, at maturity—at all events, not until the time of oviposition; but yet it may, as my observation leads me to think, seek the untenanted shell as a protection to its soft body—a protection not required by the more favoured and winged male. We have an instance somewhat similar in the Hermit Crab. The scarcity of the ♀ *Drilus* in British cabinets does not surprise me; as, had I not caught the glimpse of her ladyship's tail, I should have neglected the shell as empty and useless. I do not think this shell had had a snail in it this year. However, it is carefully preserved, and doubtless some conchologist will be able to decide on this point.—GEORGE LEWIS, West Terrace, Folkestone: 9th July, 1873.

Capture in Northumberland of a Saw-fly new to Britain.—Among other insects taken in the vicinity of Wooler by my old friend Mr. James Hardy, is a specimen of *Strongylogaster filicis*, Klug, a species not hitherto recorded as a native; it is a male (*Tenthredo carinata*, Klug, Hartig), and was captured on the 12th June last. Thomson (Hymenoptera Scandinaviæ, i, 242) adopts Klug's name for the female (*filicis*) as that of the species, but without giving any reason for doing so. It would appear to be rather a rare insect, as Hartig (Blatt- und Holzwespen, 299) says that it has occurred to him but rarely, in June, on ferns.—T. J. BOLD, Long Benton, Newcastle-on-Tyne, July 7th, 1873.

Occurrence of Pæcilosoma pulverata, Retz., a Saw-fly new to Britain.—During a visit paid to Rannoch in June, I captured among the alders at Dall three specimens of *Pæcilosoma pulverata*, Retz. (*obesa*, Klug), which, as far as I am aware, has not been added to the British species before. It was also met with near Blair Athole, and I received a specimen from Dr. White, which had been taken by him at Braemar. Its life history has been well described by De Geer in his *Mémoires*, ii, 242, tab. 34, figs. 20—25.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: June, 1873.

[I have this insect from Rannoch, Dumfries, and the New Forest, and it is also in the British collection in the British Museum, but appears not to have been hitherto recorded as native. It is very closely allied to *Emphytus ochropodus*, Klug (for which Stephens formed his genus *Heterarthrus*), notwithstanding that this latter has only three sub-marginal cellules, owing to the first veinlet being absent, a very artificial character.—R. McLACHLAN.]

Lithosia stramineola and griseola proved to be only varieties of one species.—From eggs of *Lithosia stramineola*, kindly sent to me in August last by Mr. C. G. Barrett, I have lately succeeded in rearing four perfect insects, one male and three females. Two of the females are yellow all over, one of them having its wings *somewhat clouded with grey*; and the male is *grey all over*, in fact, a true *griseola*.

The correctness, therefore, of M. Guenée's opinion as to the identity of these two forms is completely established, and *stramineola* must take the position which he assigns to it, of being a variety of *griseola*. I may say, also, that I can corroborate all that M. Guenée states of the larva in his letter to Mr. Doubleday, given in *The Zoologist* for 1863, p. 8396; I treated my late brood just in the same manner as that which I had in 1867—8 (see *Ent. Mo. Mag.*, vol. v, p. 110), but my success has not been so great as it was then, for I have not reared a quarter so many moths.—J. HELINS, Exeter: July 14th, 1873.

Capture of Ophiodes lunaris near Lewes.—A specimen of this rare insect was taken at sugar, near this town, on the 18th June last, by my friend Mr. M. S. Blaker. The insect, which is a female, is in fair condition. It possessed the usual restlessness of the *Catocalidæ*, and nearly succeeded in effecting its escape.—J. H. A. JENNER, Lewes: July 12th, 1873.

Description of the larva of Limacodes asellus.—On October 13th, 1872, I had the good fortune to receive an example of the larva of this species, found on a beech tree near Marlow, and kindly presented to be by the Rev. B. Smith.

For two days the larva continued to feed at intervals on the edges of beech leaves, and on the 16th it spun its cocoon on the under surface near the edge of one of them, and the perfect insect, a female, came forth on July 7th, 1873.

This larva, when moving and fully stretched out, measured about half-an-inch long, and a quarter of an inch broad across the middle of the body, from whence it tapered towards each end; but in repose, or when disturbed, its length did not exceed three-eighths of an inch, as the head and the second segment were then entirely retracted, so that the front part of the body appeared but little tapered, and broadly truncate, though somewhat rounded: when protruded, the head was seen to be very small, and rather flattened, as in the *Lycanidæ*; the anal extremity was rounded; on a side view the back appeared somewhat arched, and the ventral surface was in close contact with the leaf. The segments were not marked in the usual way by transverse folds, but only by narrow dimpled depressions; there were also little circular dimples on the back, one in the centre of the front of each segment, and two at the back in the subdorsal region; this region, being a little raised on each side, formed a slight dorsal hollow.

The six anterior legs, though minute, were yet distinctly to be seen when the larva was in motion, but no ventral or anal legs were perceptible, and instead of them it had along the sides on the margin of the belly, which was deeply depressed along the middle, a soft projecting ridge of extremely flexible skin. This served very well the purpose of legs by its undulatory movement from behind forwards; one wave at a time, formed under each segment, slowly advancing and subsiding in regular succession as far forwards as the fifth segment. The head was smooth and shining, the back and sides rather so, though the skin there was covered with a pubescence, but this was so fine as to be seen only with a powerful lens; it was noticeable that the dimpled spots were for the most part paler than the rest, and that a few short and very minute bristles were scattered at each extremity, and at intervals along the back.

Its ground colour was a pale yellowish-green, watery looking along the side, where it soon faded into something of a pale flesh tint beneath; on the back, beginning at the front of the third segment, was a broad olive-brown extensive mark reminding one somewhat of the dark saddle on *D. vinula*; this mark lessened in breadth a little on the fifth segment, and then grew broader on the sixth, attaining its greatest breadth on the seventh and eighth, where it reached low on the sides; it began to decrease again on the ninth, and gradually narrowed from thence to the anal tip; the olive-brown was darkest on the third and fourth segments, and there was throughout an outline of darker brown, this also further relieved below by a pale sulphur-yellow border, which enlarged to a spot on the side of the fifth segment, with smaller spots on the fourth and sixth; the second segment was pale yellowish-green, and also the head with a slight tinge of brown, the mouth edged above and on each side with dark brown, papillæ yellowish-green; a dark brown dorsal vessel could be seen through the olive on the back as far as the end of the tenth segment; the moving skin of the under surface was almost colourless, with a clear pellucid jelly-like appearance.

The cocoon was a quarter of an inch long, two lines broad, of a very short elliptical form, bearing a great resemblance to a gall excrescence; a few fine threads formed a kind of net-work round its base attached to the leaf; it was dark dull brown in colour, with blotches of a pale grey film spreading irregularly over the upper surface, as though it bore a delicate lichenous growth.

The pupa skin when extracted was but a trifle less than a quarter of an inch long and thick in proportion; the abdomen bent under, which gave it a rather rounded form; the abdominal segmental divisions were distinct, as were the parts of the head and thorax; the wing-cases were well developed and projecting; it was all very smooth and polished, and of a transparent whity-brown colour.—WILLIAM BUCKLER, Emsworth: *July 12th*, 1873.

Description of the larva of Ephyra pendularia.—In August last, I beat rather commonly from birch in Sherwood Forest, two very distinct varieties of the larva of this species, and am not aware that a description of either of them has been published:—

Length rather over an inch, and rather slender; the head small, the same width as the second, but narrower than the third segment; it has the face flattened, and is notched on the crown. Body of tolerably uniform bulk, attenuated slightly from the posterior to the third segment, which is swollen laterally. The skin has a very slightly puckered appearance, and the segments overlap each other, rendering the divisions conspicuous.

Var. 1 has the ground colour pinkish-purple, in some specimens greyish-purple; head dark sienna-brown, the mouth, and a line down each side the median suture, dull ochreous-yellow. Throughout the dorsal area extends a broad, pale, smoky band, having through its centre the pale grey medio-dorsal line; bordering this band on each side are the interrupted, indistinct, similarly coloured sub-dorsal lines; there are no perceptible spiracular lines, but that region is variegated with conspicuous pale gray marks. On the front of the 5th, 6th, 7th, 8th, and 9th segments is a very conspicuous brick-red transverse mark; the spiracles and trapezoidal dots are distinct, black. The ventral surface is dull smoke colour, with interrupted grey central stripe; legs pale yellowish-brown barred with black, prolegs pinkish-purple.

Var. 2 has the ground colour bright green, and the head reddish-brown. Medio-dorsal line indistinct, yellowish-grey, edged on the 2nd, 3rd, and 4th, and again on the 10th, 11th, and 12th segments, with a dark green line; sub-dorsal lines more distinct, yellowish-grey; there are no perceptible spiracular lines, that region being variegated with yellowish-green; the anal segment is of the same colour as the head, reddish-brown, but has in addition a yellow streak outside each clasper; spiracles and usual dots very minute, black; the segmental divisions yellow. The ventral surface is green with interrupted paler central stripe; the legs and prolegs reddish-brown. The moths from both varieties have appeared during the present month.—GEO. T. PORRITT, Huddersfield: *June 10th*, 1873.

ENTOMOLOGICAL SOCIETY OF LONDON, *2nd June*, 1873.—SIR SIDNEY SMITH SAUNDERS, Vice-President, in the Chair.

Mr. Bond exhibited living specimens of a species of *Bruchus*, bred from seeds of *Gleditschia sinensis* (received from Japan), which they had destroyed to such an extent as to render it doubtful if any remained sound.

Mr. Müller exhibited the case of a species of *Psychidæ* sent from Calcutta by Mr. Rothney, formed of the long spines of some tree arranged longitudinally, so that the points were all at the upper end.

Sir S. S. Saunders exhibited a series of living larvæ of Hymenopterous insects which inhabited the stems of brambles received from Albania; some of the stems were split longitudinally so as to show the cells formed by the parents. They consisted of species of *Trypoxylon*, *Rhaphiglossa*, *Psiliglossa*, *Odynerus*, *Osmia*, &c.

Mr. Müller read notes by Dr. Joly, in which the latter announced that he had discovered the transformations of a new species of *Oligoneuria*, and sent drawings of the pupa. Mr. McLachlan thought the information furnished was too vague, as no characters were given for the supposed new species.

Mr. Wollaston communicated a paper on the of *Cossonidæ*, being a revision of the group, enumerating 253 species, of which 139 had not hitherto been recorded.

Mr. R. Trimen communicated notes on variations observed in the neururation of Diurnal *Lepidoptera*, with reference to some observations recently made by the Rev. R. P. Murray on the same subject. Mr. Trimen thought these variations indicated a tendency to reversion to an ancestral type.

7th July, 1873.—H. T. STANTON, Esq., F.R.S., Vice-President, in the Chair.

Mr. Weir exhibited eight examples of *Agrotera nemoralis*, recently captured by him in Abbott's Wood, near Lewes.

Mr. McLachlan exhibited a Dipterous insect belonging to the *Syrphidæ*, in which gynandromorphism was presented in a strongly marked form, the genital characters being especially duplex.

Mr. Müller exhibited a large leaf of a species of oak brought from Morocco by Mr. Blackmore, the under-side of which had a number of small galls, probably formed by a species of *Neuroterus*; and Mr. Blackmore exhibited a large gall from the same species of oak, which, after the escape of the *Cynips*, had been taken possession of by an ant (*Cremastogaster scutellaris*).

Mr. Bond exhibited larvæ of the *Bruchus* from Japan brought before the last meeting. The species was apparently undescribed, and would be included in the paper on Japanese *Curculionidæ* preparing (for the Belgian 'Annales') by M. Røelofs.

Professor Westwood sent copies of two parts of his forthcoming "Thesaurus Entomologicus Oxoniensis."

Mr. W. B. Pryer exhibited a selection from his captures of Chinese *Lepidoptera*, including many interesting species.

Sir S. S. Saunders read a paper on the æconomy of certain Hymenopterous insects which nidificate in briars, in extension of his exhibition and remarks at the last meeting. He also exhibited a specimen of *Rhaphiglossa*, in illustration of the manner in which the insect goes to rest; it had been killed whilst in its natural position in repose, attached by the mandibles to the thorn of a bramble stem, from which it extended at right angles, legs uppermost. Mr. F. Smith reminded the meeting that an analogous habit had been recorded concerning *Chelostoma florissomne*, and the individuals observed were invariably males.

Mr. Butler read a paper on the species of *Galeodes* (a genus of spiders), with descriptions of new forms contained in the collection of the British Museum.

The next meeting, after the recess, will be held on the 3rd November.

DESCRIPTION OF A NEW SPECIES OF *DROMIUS* FROM ENGLAND.

BY E. C. RYE.

DROMIUS VECTENSIS, *sp. n.**sigma*, var., Dawson, Geod. Brit. p. 11 (and v. ? *oblitus*, Rye, Cat. Brit. Col.).*oblitus*, Crotch, Cat. Brit. Col., and Sharp, Cat. Brit. Col. (*nec* Boieldieu).

Testaceus, capite nigro cum thorace minutissime coriaceis, nitidiusculis, latioribus, hoc disco sapius picescenti, elytris pallidis, fasciâ communi latâ dentatâ, nigro-piceâ, antice scutellum versùs posticeque fere ad apicem externam productâ, maculisque duabus apicalibus parvis pallidis ad suturam notatis; abdomine plus minusve piceo.

Long. corp. $1\frac{1}{2}$ lin.

Habitat in Angliâ meridionali, ac præcipue insulâ Vectis: species litoralis.

Closely allied to *D. sigma*, Rossi, but more robust, with shorter and stouter antennæ, rather more prominent eyes, a wider head and more transverse thorax (both of which are not so shining, being very minutely coriaceous), and wider and comparatively shorter elytra, of which the lateral outline is less straight. The indented transverse fascia on the elytra is always wider, nearly always reaching more broadly up the suture towards the scutellum, so as to leave a pale humeral marking of less area, and invariably extending downwards on the outer side almost (if not quite) to the apex, leaving only a small pale spot on each elytron at the apex next the suture. The thorax is very frequently pitchy on the disc; and, in specimens exhibiting that colouration, the abdomen is also more or less pitchy.

This insect has been taken on the banks of the Medway at Chatham, of the Thames at Gravesend and Sheerness, and in other parts of the south of England, usually on or near the coast, but is especially found in the Isle of Wight; whereas *sigma* chiefly occurs in the Cambridgeshire fens, and is apparently not of shore-frequenting habits.

Dawson has noticed the differences in marking, but not the structural peculiarities of this insect, which he considered to be a local variety of *D. sigma*.

The *Dromius elliptipennis* of Wollaston (Cat. Can. Col., p. 12), from Teneriffe, Gomera, and Hierro, where also the true *D. sigma* occurs, is closely allied to *D. vectensis*, having a broader transverse fascia, and being of broader and more robust build than *D. sigma*; but in it the fascia is not developed towards the apex, but upwards, in fully coloured specimens almost joining a well-marked scutellar

patch (even in these the head is not black but fusco-piceous), and with the thorax is more evidently coriaceous; the thorax itself is conspicuously longer and less transverse (much more so than in *D. sigma*; a character not mentioned in the description, but apparent in all the Wollastonian types in the British Museum), and the shoulders of the elytra are more sloped.

The *D. bipennifer* of Babington (Trans. Ent. Soc. Lond., i, p. 86, pl. x, f. 3) would seem by its name to point to *vectensis*; but, from its locality (Whittlesea Mere), and the very clearly drawn figure, is evidently (as is the *D. Sturmii* of the same author) nothing but *D. sigma*.

D. vectensis has also some affinities with *D. nigriventris*, Thoms. (April, 1859), so common at Southend; but the invariably dark abdomen and thorax, much narrower shape, slighter build, and less defined and very variable elytral fascia of the latter readily distinguish it. It is the *fasciatus* of Dejean, Dawson, and Wat. Cat., but *fasciatus* being preoccupied by Paykull and Fabricius for *sigma*, Rossi (anterior in date), another name is considered to be required for this one. Schaum, Ins. Deutschl. i, p. 272, adopts *notatus*, Steph., for it; but Thomson, though referring to Schaum's pointing out the necessity of suppressing *fasciatus*, altogether ignores his adoption of the Stephensian name, and, I think, with propriety, as Stephens (Manual, p. 7) himself sinks his *notatus* as a variety of *fasciatus*, Payk., which, as above observed, is *sigma*, Rossi, and with which he erroneously identifies the Southend species.

D. oblitus, Boieldieu (Ann. Soc. Ent. France, sér. 3, vii, p. 462; 21 Aug., 1859), is, from the description, apparently *nigriventris*, Thoms., with which it is associated in all recent Catalogues, and which has a priority of publication of about five months. The *oblitus* of the respective Catalogues of Mr. Crotch and Dr. Sharp, and the *var. ? oblitus* of my own Catalogue refer, however, to *vectensis*.

D. myrmidon, Fairm. (Ann. Soc. Ent. France, sér. 3, vii, Bull., p. ciii), from Béziers, is of very small size (2 millim.), and has the thorax of *quadrillum*.

D. sellatus, Motschoulsky (Etudes Entomologiques, iv, 1855, p. 82), from Egypt, thus curtly described:—"De la taille du *Dr. sigma*, mais "plus large; d'une couleur testacée pâle, à tête noire et une bande "transversale, étroite, sinuée en angle vers la suture, sur la partie postérieure des élytres," will apparently fit any of the group but *vectensis*, with which the narrowness of its transverse band prevents any comparison.

Park Field, Putney, S.W.:
August, 1873.

DESCRIPTION OF A NEW SPECIES OF THE COLEOPTEROUS GENUS *ANOPLOGNATHUS*.

BY CHARLES O. WATERHOUSE.

ANOPLOGNATHUS PARVULUS, sp. nov.

♂. *Statura omnino A. viridi-ænei*, at minor; *aureo-viridis*, *nitidissimus*; *clypeo rugoso-punctato*, *capite dense punctato*; *thorace parcius punctulato*; *elytris subtilius sat dense sub-seriatim punctulatis*. *Antennis pedibusque obscure testaceis*; *tarsis piceis*, *cupreo-micantibus*. *Mesosterno inter coxas non producto*, *in medio parce punctato*, *punctoque nigro-cæruleo sagittiformi impresso*, *lateribus dense punctatis*, *albo-pubescentibus*. *Abdomine in medio fere impunctato*, *lateribus fortiter punctatis et albo-pubescentibus*. *Pygidio dense transversim ruguloso-strigoso*.

Long. 8 lin., *lat. 4½ lin.*

In general form this species closely resembles *A. viridi-æneus*; the clypeus is, however, a little more emarginate on each side, and less reflexed in front, and the surface is distinctly and thickly punctured. The thorax is scarcely emarginate before the anterior angles, the angles very slightly prominent and obtuse, the surface is nearly twice as thickly punctured, and is more distinctly so than in *A. viridi-æneus*. The scutellum is sparingly and distinctly punctured. The elytra are slightly less arched than in *A. viridi-æneus*; the punctuation is rather finer, and is continued on the sides, but is less close.

The absence of the sternal spine, together with the total want of brown colouring on the upper surface, will at once separate this from any species of the genus with which I am acquainted.

Hab.: E. Australia.

Coll. British Museum.

British Museum: *July 31st*, 1873.

NOTES ON *CORIXA*.

BY F. BUCHANAN WHITE, M.D., F.L.S.

(concluded from p. 63).

Analytical Key to the British Genera and Species of *Corixidæ*.

GENERA.

A. Head (with eyes) wider than pronotum.

1. Pronotum without markings. No strigil in male *CYMATIA*

2. Pronotum with impressed transverse lines. Strigil in male... *OREINOCORIXA*

B. Head (with eyes) not wider than pronotum.

1. Pronotum and elytra not rastrate. Asymmetry to left side in male *MACROCORIXA*

2. Pronotum and elytra more or less rastrate. Asymmetry to right side in male.

α. Posterior metatarsus more or less conspicuously marked with black. No strigil *CALLICORIXA*

β. Posterior metatarsus not or scarcely marked with black. Strigil in male *CORIXA*

SPECIES.

CALLICORIXA.

A. Second joint of hind tarsus margined only with black.

1. Clavus with longitudinal lines *Boldi*
2. Clavus with transverse lines.
 - α . Spot on hind metatarsus quadrate *præusta*
 - β . Spot on hind metatarsus subtrapezoidal. Middle and hind thighs dusky *socia*
 - γ . Spot on hind metatarsus triangular.
 - * Spot longly triangular (beginning near middle of inner side) *Wollastoni*
 - ** Spot shortly triangular.
 - a . A brown-black species *sodalis*
 - b . A yelk-yellow species *cognata*, D. & S.

B. Second joint of hind tarsus black at base *concinna*

MACROCRIXA.

A. Pronotum with 16 or more, somewhat irregular, transverse lines . *Geoffroyi*

B. Pronotum with 12—14 more regular transverse lines.

1. Posterior margin of pronotum very narrowly yellow. Palæ of
 - δ rounded from above at end *Panzeri*
2. Posterior margin of pronotum very narrowly brown. Palæ of
 - δ truncate at end *affinis*

CORIXA.

A. Anterior keel of pronotum obsolete or short.

1. Corium not rastrate, or obsoletely so at base.
 - α . Shining black above, with yellow lines.
 - * Pronotum with longitudinal middle line barely perceptible *Iugubris*
 - ** Pronotum with longitudinal middle line distinctly raised in front *Stali*
 - β . Shining yellowish-grey, with black lines *hieroglyphica*
2. Corium more or less rastrate.
 - α . Yellowish-grey or ochreous, with black markings.
 - * Clavus throughout with straight, narrow, parallel lines. *nigrolineata*
 - ** Clavus with oblique irregular lines, except at base ... *perplexa*
 - β . Brown or black, with pale markings.
 - a . Corium with parallel, undulating, generally entire lines.
 - * Pronotum with 8 lines *Sahlbergi*
 - ** Pronotum with 6 lines *Linnaei*
 - b . Corium with subparallel interrupted lines.
 - \ddagger Clavus with subparallel more or less interrupted lines.
 - \dagger Pronotum with 5 lines *Scotti*
 - $\dagger\dagger$ Pronotum with 6—9 lines.
 - \P Larger species ($3\frac{1}{4}$ — $3\frac{1}{2}$ lines long).

(1) Pronotum with 6—7 lines.

* Clavus with basal lines very broad inwardly *striata*

** Clavus with basal lines not broader inwardly *Douglasi*

(2) Pronotum with 8—9 lines.

* Lobes of prosternum narrow, twisted..... *Falleni*

** Lobes of prosternum broad..... *distincta*

¶¶ Smaller species ($2\frac{1}{4}$ — $2\frac{3}{4}$ lines long).

(1) Pronotum with 6 lines.

* Dull fuscous-brown, with indistinct markings *mæsta*

** Shining fuscous-black, with distinct markings *fossarum*

(2) Pronotum with 7—9 lines.

* Marginal channel of elytra black (inner basal half yellowish) *Fabricii*

** Marginal channel of elytra pale.

o Markings of pronotum & elytra distinct. *decora*

oo Markings of pronotum & elytra obscure.

|| Sternum black *borealis*, D. & S.

||| Sternum entirely pale *Whitei*

‡‡ Clavus with parallel, scarcely interrupted or shortened lines.

† Pronotum with irregular, interrupted lines *dubia*

†† Pronotum with regular lines.

* Transverse markings of corium crossed by 2 distinct black longitudinal lines ... *limitata*

** Transverse markings of corium crossed by 3 distinct black longitudinal lines ... *semistriata*

*** Transverse markings of corium crossed by 4 distinct black longitudinal lines (of which one is at the posterior inner angle) *venusta*

B. Pronotum with a distinct central keel nearly throughout its length.

1. Pronotum with 10—12 lines *Sharpi*

2. Pronotum with 8—9 lines *intricata*

OREINOCORIXA.

Shining black. Pronotum with about 8 indistinct impressed concolorous transverse lines..... *alpestris*

CYMATIA.

1. Pronotum twice as broad as long, membrane of elytra and wings present *Bonsdorffi*

2. Pronotum about four times as broad as long, membrane of elytra and wings absent *coleoptrata*

THE "LIFE-HISTORY" OF THE CORIXIDÆ.

I have been able to find very little record of the life history of these insects, and, unfortunately, my own notes are but limited.

Léon Dufour* has figured and described the eggs of two species of *Corixa*. That of *striata* is oval and somewhat suddenly acuminate at the free end ; that of *hieroglyphica* is oblong-oval, and also acuminate and pointed at the free end. He says that these eggs are placed on a kind of circular pad. I have seen the eggs of *C. nigrolineata*. They were laid about April 24th, and were then shortly pyriform, attached to the broader end ; the free end narrower and nipple-shaped, with a projecting point from the nipple. In colour, they were yellowish-white and opaque, and the surface very delicately hexagonally reticulated, with the reticulation finely impressed. They were attached singly, or two or three together, to plants, &c. On May 5th, the annulus round the nipple had become fuscous, and the egg generally darker, except the nipple, which remained light. On May 7th, the shape of the egg appeared to be less pyriform and more ovate ; at about one-third the length of the egg from the apex appeared on each side the eye of the enclosed embryo as a reddish-brown spot, not sharply defined, and somewhat curved wedge-shaped, and made up of hexagonal cells ; in the annulus were six dark lines, radiating from the centre of the nipple. May 10th, egg generally darker, and eye spots larger and darker. About May 13th, some of the eggs were hatched ; the apex split along the dark radiating lines, and the six teeth thus formed rolled somewhat back, and each nearly divided into two or three lesser teeth.

The young *Corixa*, when newly hatched, is delicate white in colour and semi-transparent, the eyes alone being reddish-brown ; it soon, however, becomes darker in colour, and banded with grey. The first pair of legs are much the same as in the adult, with rows of cilia and a single claw ; the second pair are as in the adult, the one-jointed tarsus being provided with two long claws ; the third pair as in the adult, but the tarsus with *one* joint only (as Westwood observes†), with two claws and *simple* hairs. Inside the legs, the muscular fibres may be seen constantly twitching, for what purpose I know not, unless it be in connection with the circulation. The habits of the young *Corixa* are much the same as those of the adult. At this stage my observations were unfortunately cut short by the death of my specimens.

The adult *Corixa* in swimming uses only the posterior legs ; these legs are also used for cleaning the elytra, &c. In doing this, the animal uses one or both legs, brushing the pronotum, elytra, the under-side of the hind-body, and the long hairs at its end. To assist, perhaps, in this cleaning process, the inside of the hind tibia and the base

* Recherches sur les Hemiptères.

† Modern Classif. ii, 460.

of the first joint of the hind tarsus are provided with what may be called comb or rake hairs; these are shorter and stiffer than the swimming hairs, and are widened and flattened at the extremity, being, in fact, somewhat oar-shaped, and truncate at the apex, which has fine, long teeth. These teeth are admirably adapted to rake out any particles of foreign matter which may have lodged in the fine rastration with which the pronotum and elytra of many species are sculptured; the species, however, which have no rastration (such as *Macrocorixa*) are, equally with the rastrate species, provided with rake hairs. These rake hairs are not present in the young.

The middle pair of legs are used for standing on, the long claws clasping stones or plants, and the body of the animal remaining at some distance from the object rested on. The animal can also walk in a kind of way with these legs, its progress being at the same time assisted by short, jerking strokes of the hind legs through the water. When at rest, and not clasping anything with the claws, the animal rises slowly to the surface of the water. The front legs or palæ are used for feeding. When in action, they are brought rapidly and alternately to the rostrum; in inaction, they hang downwards and inwards, their tips approaching each other; in swimming, they lie backwards along the sternum. I have not been able to make out satisfactorily of what the food of these insects consists (Westwood has recently described an Indian species, which is said to feed on the eggs of fish*). They often rest on a stone, and seem to scrape its surface with the palæ, which they bring rapidly and alternately to the mouth. In the same manner they scrape a root of *Lemna*, passing it rapidly between the palæ. On examining a stone from which a *Corixa* had apparently been obtaining food, a small *Alga*, and a few *Rotifera* and other animalcules were seen.

Corixæ generally remain near the bottom of the water, and seldom come to the surface to breathe, as they can carry a large supply of air with them. Air is carried under the hind margin of the head, under the hind margin of the pronotum, in the marginal channel of the elytra, in the short channel between the clavus and corium, on the sternum and under-side of the hind-body, and between the wings and upper surface of the hind-body, being retained in the latter situation by the long hairs at the end of the hind-body. I am not sure, but that, in brushing the elytra with the hind legs, they carry air from the channels of the elytra to the hind-body.

These insects are not often seen on the wing, probably for the

* *Corixa ocicora*, Proc. Ent. Soc. Lond., 1871, p. iv, Madras.

reason that they fly chiefly at night. Mr. Bold has recorded in this Magazine the capture of *Callicorixa Wollastoni* at light, and I have taken several *Corixæ* in the same manner. *Notonecta*, on the other hand, flies readily in the hot sunshine, and may sometimes be seen far from water.

All the species hibernate in the perfect state (differing in this respect from *Sigara*, which passes the winter as a larva), and, after pairing in spring or early summer, die before the larvæ attain any size. The perfect state is attained towards the end of summer or in autumn, the time differing according to the altitude at which the species are found.

Perth: June, 1873.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

Revision of the BYTHOSCOPIDÆ, and descriptions of some species not hitherto recorded as British.

(continued from page 29).

Species 7.—IDIOCERUS FULGIDUS, Fab.

Cicada fulgida, Fab., Ent. Syst., 44, 73.

Idiocerus ochroleucus and *Minki*, Kirschb., Cicad., 163, 22 and 23.

♀ yellow, shining. *Scutellum* with a black, triangular spot near each basal angle; *clavus* with a white blotch around the apex of the central nerve; *corium* without a transverse band.

Head: crown pale yellow in front, with a small brown spot near each eye. *Face* and *clypeus* pale yellow.

Thorax: *pronotum* pale brownish-yellow, slightly darker across the middle. *Scutellum* clear yellow, with a black triangular spot near each basal angle. *Elytra* yellow. *Clavus*—nerves fine, delicately punctured on each side; central nerve at the apex white, around which is a somewhat oval white blotch; inner margin narrowly brown, between the central nerve and the apex of the scutellum pale. *Corium* yellow; the colour becoming paler towards and at the anterior margin; nerves fine, whitish, delicately punctured on each side. *Membrane*—inner marginal nerve to round the apex, and the apex of two or three of the cell nerves, brown. *Sternum* yellow, *Legs* yellow; *claws* pitchy-black.

Abdomen above, yellow, with a broad black streak down the centre; posterior margin of the segments yellow; beneath yellow; last genital segment above black, beneath yellow.

Length, $2\frac{1}{2}$ lines.

I have drawn up this description from a single ♀ in the Banksian collection, now in the possession of the British Museum, but it so closely resembles the ♀ of *I. populi*, that I have some doubts as to its being really a distinct species, until I have seen and examined a ♂.

Species 8.—*IDIOCERUS CONFUSUS*, Flor.

Idiocerus confusus, Flor, Rhyn. Liv., Vol. ii, 179, 9; Kirschb., Cicad., 164, 26; J. Sahlb., Not. Fenn., part 12, 150, 11 (1871).

Idiocerus albicans, Kirschb., Cicad., 164, 27.

Iassus populi, Fall., Hem. Succ., Cicad., 60, 3, var. *y*; Zett., Ins. Lapp., 301, 1, var. *c*.

♂ very pale yellow or greenish-white. *Antennæ* with an apical plate; *elytra* without a transverse band; *scutellum* without a black triangular spot near the basal angles.

Head: crown, face, and *clypeus* pale yellow. *Antennæ* plate somewhat long, oval, black.

Thorax: *pronotum* pale yellowish or greenish-white. *Scutellum* clear yellow or greenish-white, without the usual black triangular spot near each basal angle.

Elytra: *clavus* pale yellow between the inner margin and the central nerve, and between the latter and the suture greenish-white, with the apex yellowish; inner margin between the central nerve and the suture blackish; nerves pale green. *Corium* pale yellow, gradually becoming paler towards and at the anterior margin; nerves pale green or greenish-white, nerves white. *Membrane* somewhat brownish; marginal nerve next the inner margin, and the apex of one or two of the cell nerves, black. *Sternum* yellow. *Legs* yellow.

Abdomen above, black, side margins broadly yellow; beneath yellow; last genital segment yellowish or greenish-white; external processes white, apex black, in appearance resembling those of *I. adustus*, clothed with long white hairs.

♀ usually greyish or greenish-white. *Elytra* with pale green or white nerves; when at rest there appears, more or less distinct, upon the clavus, two brownish triangles, one between the base and the central nerve, the other between the latter and the apex.

Length, ♂ ♀, $2\frac{1}{2}$ —3 lines.

Not likely to be confounded with any other of our British species.

Very common on willows and poplars from July to September. It has occurred at Lee, Bexley Road, &c.

In addition to the foregoing described species, I may here add that Mr. Douglas and I possess three other species, which I have been as yet unable to determine.

Genus *BYTHOSCOPIUS*, Germ.

A genus, according to Fieber's catalogue, with five European representatives, of which only one has hitherto been supposed to be British; on examination, I find we have really two species, and these no doubt are mixed together in collections. It is a very pardonable mistake, as the extreme variability both in colour and markings of *fruticola* would induce any one to suppose the other species (*alni*) merely one of its forms. But there are good specific characters, and I hope the description given below will enable any one to separate them. This genus is readily distinguished from *Macropsis* by the obtuse-angled shape of the hinder margin of the crown, and from *Idiocerus* by the want of an antennal plate.

Species 1.—BYTHOSCOPIUS ALNI, Schrank.

Cicada alni, Schrank, F. B., vol. ii, 50, 1056.

Iassus bipustulatus, Fab., Ent. Syst., vol. iv, 45, 79; Germ., Mag., vol. iv, 83, 10.

Iassus alni, Boh., Handl., 56, 28 (1845).

Pediopsis Heydeni, Kirschb., Cicad., 171, 2.

Pediopsis alni, Thomson, Op. Ent., fasc. iii, 319, 5.

Varies in colour from a semi-transparent greyish-white to reddish-brown.

♂. *Scutellum* with a black or brown triangular spot at each basal angle; in the ♀ unicolorous. *Clavus*, base with a more or less distinct (sometimes wanting) broad, whitish or greenish-white band.

♂. *Head* yellow, and somewhat rugulose punctate. *Crown* with a broad black or fuscous streak terminating in a black spot, at a little distance from each eye, and divided in the middle by a narrow, yellow, central keel. *Face* yellow, with a black spot at the ocelli, and an oblique, black, somewhat comma-shaped patch, a little lower down, and more interior; side margins frequently pale brownish.

Thorax: *pronotum* yellow, transversely, finely crenulate, between the crenulation dark grey; behind each eye a small black spot; on each side next the anterior margin a transverse, somewhat kidney-shaped, brown patch margined with black. *Scutellum* lurid or yellowish, or pale brownish, very finely punctured; basal angles with a triangular blackish or brown spot, its inner margin not unfrequently black; above the transverse somewhat arcuate channel are two small black spots; a longitudinal central line and the apex generally brown. *Elytra* dark greyish-white or with a testaceous tinge, semi-transparent; *clavus*—inner margin white, apex narrowly and the space between the apices of the nerves black; suture piceous; disc at the base with a broad, more or less distinct, white band, apex of both nerves piceous. *Corium*: nerves piceous, the colour of somewhat irregular width, so that the nerves here and there seem to be thickened; anterior margin and first longitudinal nerve at the base pale. *Sternum* yellow: *metasternum*—the outer angle and a spot near the fulcrum black. *Legs* yellow; *fulcrum*—2nd and 3rd pairs in front with a black spot; *thighs* generally with a longitudinal black streak on the inside and outside; *tibiae* with a black streak down the outer margin, very frequently in the 2nd and 3rd pairs not reaching to the apex; *tarsi*—3rd joint and *claws* black.

Abdomen—above black, base yellow, posterior margins of the segments yellow; beneath yellow; last genital segment brownish, the upper and lower margins, and commonly two spots on the sides, dark brown, external processes short, more or less brown.

♀ brown or reddish-brown. *Scutellum* without the blackish or brown triangular spots at the basal angles. *Clavus* with a broad whitish or greenish-white band across the base. *Corium*—anterior margin and a portion of the disc from beyond the middle towards the apex more or less irregularly whitish; nerves brown, all the other characters nearly as in the ♂.

A larger species than the next, and not so liable to vary.

Apparently not uncommon on alders. Mr. Douglas and I have taken it at Greenwich in July.

(To be continued).

Note on Cymindis lineata, Dej.—This insect, attributed by Fairmaire (Faune Ent. Franç., i, p. 31) and Schaum (Ins. Deutschl., i, p. 298, note) to *C. homagrica*, Duft. (*axillaris*, F.), as a variety, occurring in the south of France with the type form, has not, I think, been hitherto recorded as British (unless, as is not improbable, the insects referred to by Stephens under the names *angularis*, Gyll., and *macularis*, Fisch., are to be referred to it), but may now be included with certainty in our list, as I have detected an individual of it among some specimens from Box Hill in my own collection. *C. lineata* is described by Fairmaire as having the humeral spot prolonged to the apex of the elytra, forming a slightly inwardly oblique band, sometimes constricted or even widely interrupted in the middle, and of variable width. In my example, this band is represented by a narrow longitudinal isolated streak of yellowish colour in the apical third of the elytra, not quite reaching the apex itself, and situated on the 3rd and 4th interstices. I observe in other ordinary examples that the suture is more or less yellowish.—E. C. RYE, Park Field, Putney, S.W.: *August, 1873.*

Note on capture of Lymexylon navale.—On the 19th inst., I succeeded in finding three specimens of *Lymexylon navale* in the solid wood of the tree upon which Mr. Chappell found that species last year; I also found some larvæ of the species in the wood. On the 21st, I again found one of the perfect insects in the same tree, and “prospected” other likely trees, but saw no traces of the holes made by the beetle. However, as I was examining a tree, I saw a creature flying, and made a dart at it, and it turned out a ♀ *Lymexylon*! On the 25th, I got two more; one flying, the other at rest,—but no more from the old tree. I was sorry to find the specimens I got out of the tree on the first occasion were slightly injured.—J. E. SIDEBOTHAM, 19, George Street, Manchester: *July, 1873.*

Magdalinus carbonarius in Northumberland.—Although I have for many years had in my collection two local examples of *Magdalinus carbonarius*, Linn., I could never learn the place where, nor the plant on which, they were found; it was, therefore, with great pleasure that I received from Mr. James Hardy a fine female, taken on birch at Langley-ford Hope, near Wooler, on the 4th June last. That date, however, may be somewhat later than its usual time of appearance, for the season here has been very backward, most of the trees, &c., being fully a month late in leafing. Curtis informs us that he found the specimen he figures on the hazel, near Ambleside, on June 19th. Gyllenhal says of the ♀ (*carbonarius*, Linn.), “Habitat in ‘foliis Sorbi, Betulæ, Coryli;’” and of the ♂ (*atratus*, Gyll.), “in floribus Pruni ‘spinose et Cratægi oxyacanthæ.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne: *July 7th, 1873.*

An Australian beetle near London.—A specimen of the Australian Coleopterous insect, *Tropis dimidiata*, was captured on the wing at South Kensington on the 8th inst., by Mr. R. A. Thompson, of the South Kensington Museum. It has been identified by Mr. F. P. Pascoe, to whom I showed it at a meeting of the Kensington Entomological Society.—RICHARD COWPER, 3, The Residences, S. K. Museum: *9th August, 1873.*

Captures of Coleoptera in North Kent.—I have again no reason to complain of any want of success in my hunting for *Coleoptera*, the following species having occurred to me since the middle of March last. The whole of them have, as before, been consigned to my friend Mr. Champion, to whom I am indebted for most of the names.

In the Isle of Sheppy, my captures include *Oxytelus clypeonitens*, *Protinus macropterus*, *Scydmaenus angulatus* and *Sparshalli*, *Corticaria Wollastoni* (not rare), *Throscus obtusus* (in profusion) in moss growing on old ash stumps in a little thicket; *Phalacrus brunnipes*, and *Celiodes exiguus* (not uncommon) in moss on grassy banks; *Achenium humile*, *Agathidium marginatum*, *Monotoma brevicollis*, *quadrucollis* (common), and *4-foveolata* (one specimen among scores of *M. rufa*) in stack-refuse; *Bagous laticollis* (abundant), *frit*, *subcarinatus*, and *sp.?* (near *frit*; also taken here, last year, I believe, by the Rev. H. S. Gorham), and more *Trogophlæus foveolatus*, in flood refuse on ditch sides; *Bledius tricornis*, abundant in a salt marsh, in company with a few *B. spectabilis*, *Dyschirius politus*, *Heterocerus flexuosus*, *marginatus*, and *sericans*; *Oxypoda Waterhousii*, and *Bryaxis Waterhousii*, under stones among tidal refuse; *Homalota elegantula* (eighteen specimens on May 1st), and *Polydrosus chrysomela*, by sweeping on a grassy bank near the shore; *Tachinus elongatulus*, one specimen crawling on the pavement in the sunshine.

Since my removal to Chatham, early in May, I have taken *Bolitochara bella* and *lunulata*, *Oxypoda spectabilis*, *Homalota hepatica* (8), *elegantula* (1), and *scapularis*, *Mycetoporus brunneus*, *Quedius scitus*, *Scydmaenus præteritus*, Rye (2), and *exilis*, *Agathidium convexum* and *seminulum*, *Hydnobius strigosus*, *Anisotoma parvula* and *nigrita*, *Colenis dentipes*, *Colon Zebei* and *viennense* (3), *Leptinus testaceus* (about 30, in the dead leaves and rubbish lying about the entrance of the nest of a *Bombus*,—I think *subterraneus*), *Meligethes symphyti* and *brunnicornis*, *Antherophagus silaceus*, *Atomaria ferruginea*, *Aphodius arenarius* (common) and *porcatus*, *Salpingus castaneus* (not rare), *Tetraloma ancora*, *Eryx atra* (in ash), *Mordellistena brevicauda* and *humeralis*, *Trachyphlæus alternans* (off *Helianthemum*), *Metallites marginatus*, *Liosomus oblongulus*, Boh. (2), *Tychius lineatulus* (abundant on *Anthyllis vulneraria*), *Gymnetron labile*, *rostellum*, and *melanarium*, *Ceuthorhynchus frontalis*, *cochlearia*, *chrysanthemi*, *constrictus*, and *alliaræ*, *Rhinoncus denticollis*, *Choragus Sheppardi*, *Tomicus micrographus*, *Bruchus seminarius* and *loti*, *Phytæcia cylindrica*, and *Platynaspis villosa*, by sweeping in wood paths, under fir trees, and on chalky slopes. Early in April, in the same district, I also obtained *Aspidophorus orbiculatus*, *Cænopsis Waltoni*, *Tropidophorus carinatus*, and *Mniophila muscorum* in moss, the latter in profusion, chiefly affecting the moss on old tree stumps. *Quedius brevis*, *Xantholinus atratus* (common), and many other *Myrmecophila* occurred in one small nest of *Formica rufa*.

At Faversham, on April 22nd, I took *Staphylinus latebricola* (1), *Scydmaenus elongatulus*, *Tropidophorus carinatus*, *Trachyphlæus squamulatus* and *aristatus*.—JAMES J. WALKER, 19, Upper Britton Street, New Brompton, near Chatham: June 14th, 1873.

Note on Camponiscus Healæi, Newman.—In the 'Entomologist,' No. 62, p. 215, 1869, Mr. E. Newman described a saw-fly under the name of *Camponiscus Healæi*. This I have bred, and find to be the *Tenthredo luridiventris* of Fallén (1808), and the *Nematus (Leptopus) hypogastricus* of Hartig. Thomson (Hym. Scand., i, 78) places it in the genus *Leptocercus*, which is no doubt its proper position, although the larva has a much closer affinity to some of the typical *Nemati* than to that genus, and, indeed, the present species forms a connecting link between the two.

Stephens' name *Hemichroa* (Ill. Brit. Ent., vii, 55, 1835) has priority over *Leptocercus* (Hartig, Die Blattwespen, 228, 1837), and will consequently require to be adopted.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: August 11th, 1873.

Occurrence of Cænoneura Dahlbomi, Thoms., a genus and species of *Tenthredinidæ* new to Britain.—On the 30th of June, in Cadder Wood, near Glasgow, I had the pleasure of taking a single specimen of *Cænoneura Dahlbomi*, Thoms., (Hymen. Scand., i, 182; Opusc., i, 271), a genus and species of *Tenthredinidæ* new to this country. The genus *Cænoneura* may be readily recognized from *Fenusa* and *Fenella*, the genera between which it is placed, by its 7 or 8 jointed antennæ, and by the two marginal and four sub-marginal cells in the anterior wings. My specimen is the variety described by Thomson, and has the antennæ entirely black, and apparently 7-jointed, but with a strong lens they appear to have in reality eight joints. It was beaten out of birch, along with *Phyllotoma nemorata*, Fallén, and *P. microcephala*, Klug, two allied species; and nothing appears to be known regarding the larva, although no doubt it is a leaf-miner. On the 9th of August, I saw in the same locality, what appeared to be another specimen, but having at the moment both hands occupied, failed to secure it.—ID.

Occurrence of the galls of Cynips ferruginea, Hartig.—Last week, when collecting in Cadder Wood, I was compelled by the rain to take shelter under an oak, and succeeded in discovering on the leaf-buds, several of the galls of *Cynips ferruginea*, Hartig (Germ., Zeits. Ent. 2, 189). They are of a woody texture, somewhat spindle-shaped, and covered with short, brownish wool. *C. ferruginea* has not been hitherto recorded as British.—ID.: August 15th, 1873.

Oakgalls at Ballater, in June, including Andricus amenti, Giraud, new to Britain.—On June 14th, with my friend Mr. Vice, I went to Ballater for a day's collecting, especially to look for oakgalls, and was successful in finding abundance of galls of *Andricus quadrilineatus*, of *Andricus ramuli*, L., and (on one bush) of *Andricus inflator*, not to mention more common kinds. On afterwards looking over some catkins bearing galls of *quadrilineatus*, which we had brought back with us, we found abundance of galls of *Andricus amenti*, Gir., which have since produced the insect. They are very small and inconspicuous, sessile, ovate, attached by the rounded end, not exceeding $\frac{1}{12}$ -inch in length, covered with short hairs, and, when mature, of a brown colour.

Galls of *Andricus quadrilineatus*, Hartig, as above mentioned, occur at Ballater, and I have found them commonly near Aberdeen, so they are quite common in this district. In addition to my previous note on these species, I may mention that I have found them frequently on leaves, attached to one side of the midrib, and differing in no respect from those on the catkins, the colour being indifferently in both green or reddish-brown. When they occur on the midrib, the lamina is deficient opposite the point of attachment. This variety of the gall is clearly the same as Schlechtendal's species (described simply from galls), *Cynips marginalis* (?), and is clearly specifically identical with the more usual forms on the catkins.—JAMES W. H. TRAILL, Old Aberdeen: July, 1873.

Occurrence of galls of Spathegaster vesicatrix, Schlechtendal, at Banchory.—On Saturday, July 5th, I found the galls of this insect abundant in oak leaves, at Banchory. As I am not aware of any English description of them, I will now

describe them. The gall is sunk in the substance of the leaf, and is easily overlooked. When fresh, it is most readily detected by the regularly radiating lines which pass from a small knob in the centre to the circumference. When mature, and still more after its occupant has departed, it is far more readily seen, the upper and lower surfaces projecting considerably from the lamina, and becoming whitened and sear while the rest of the leaf is still green. In form it is oval, about $\frac{1}{8}$ -inch by $\frac{1}{12}$ -inch. Both surfaces are naked; the upper has a small central prominence and radiating lines, the lower has no central knob, has the radii more irregular, and projects less than the upper. The walls are very thin, and enclose a large cavity. Most of those I found were empty, but a few contained pupæ.—ID.

Description of the larva and pupa of Hesperia Actæon.—On the 11th of June, 1873, Mr. Thomas Parmiter, of Kimmeridge, Dorset, very kindly sent me four larvæ of this species found by him on *Brachypodium sylvaticum*, a grass growing abundantly along the downs facing the sea, where the sub-soil is of chalk or limestone, from Swanage to Weymouth. Along this region the detached haunts of *Actæon* are scattered, each locality being within one or two hundred yards or so of the shore, having a southern aspect, and well sheltered from the north by a hill. In these favoured spots *Actæon* is plentiful.

I found these larvæ take readily to *Triticum repens*, which was potted for them, and their habit of feeding was as follows: ascending high up the blades of the grass they began eating out a wedge-shaped portion from the side which cut off the pointed top, leaving an oblique edge above, and either fed there on the upper edge for a little, or proceeded to eat away large wedge-shaped pieces from the side of the blade; when tired of feeding, they removed lower on the middle of a blade, and there spun a coating of white silk from one side to the other, causing the two edges of the blade to draw together a little, and there in the silk-lined hollow they would rest for awhile, coming out again to feed. For a time, I placed one of the larvæ on *Triticum pungens*, a stouter and tougher grass, with which it seemed perfectly contented, and behaved in all respects as it had before on *T. repens*.

These larvæ had attained their full length by the time they reached me, but continued to increase somewhat in bulk till June 20th, and by the 23rd they had ceased to feed, and were beginning to fasten themselves within more closely constructed retreats, formed where two blades of the grass obliquely crossed each other; however, a few days later, probably from the grass not being quite free from mould, two of them abandoned their places, and found others suitable to themselves, where they pupated, in horizontal positions, under a projecting ledge that supported the glass superstructure of their cage; one of the individuals that remained spun up on the grass, and pupated there, with its head uppermost in nearly a perpendicular position, most unfortunately met with decapitation a fortnight afterwards whilst I was cutting the grass with scissors.

The butterflies appeared on July 14th, 17th, and 18th, viz., two females and a male; in each case the imago came forth at night, the insect being ready for flight in the morning.

These full-grown larvæ were from six-eighths to seven-eighths of an inch in length, and in figure (leaving out the head) tapered a little to each end, the second

segment being the smallest and very short ; the head swells out again beyond the size of the second segment, but not to such an extent as in some others of the genus. But, in justice to the talented author, I will here quote from Professor Zeller, whose admirable observations and account of this larva from the egg to full growth were published in 1862 in 'The Weekly Entomologist,' *vide* Vol. i, pp. 10—12.

" * * * * When full grown they seek for a retired shelter, which they " find in a corner, or between some leaves, of which they form a spacious habitation " by spinning in the open parts a thin wall of whitish silk web, with large and very " irregular meshes ; the resting place being thickly covered with whitish silk, but " most thickly where the tail of the larva is to rest. In four or five days it changes " into the pupa.

" This larva is of the general form of *Pamphilus*, i. e., cylindrical, tapering " towards the tail and head, the latter being large and as it were separated from " the trunk by a string. It is of a pale greyish-green, with the dorsal vessel darker " and edged with a slender pale yellow line on either side, and enclosing a pale " longitudinal line along its middle. A narrow yellowish line runs above on the " side, and a broader one below. The two dorsal lines are prolonged as far as the " middle of the head, and run to the end of the flat anal shield, which is narrowly " edged with pale yellow. The transverse folds of the skin are yellowish. The head " is rounded with inflated cheeks, the brownish mouth sunk deep between them. " The colour of the head is brown in the young larva, paler in the older ones, with " the two yellowish lines very distinct and exteriorly edged with brown,—greenish " in the oldest ones, with lines shorter and paler, without darker edges. The legs " are very short and greenish, the ventral ones having usually a longitudinal yellowish " stripe. The two snow-white patches on the under-side of the tenth and eleventh " segments are conspicuous as in *P. lineola*, *sylvanus*, and *comma*, and appear to " be a peculiarity of the whole genus. This white substance is spread out at the " tail-end of the larva of *P. Actæon*, when it has formed its chrysalis case."

As regards my four larvæ, but little can be added to the foregoing,—merely that the spiracles were pale flesh colour, situated on a fine and faint pale line, which touched them in front and vanished behind each spiracle ; that the lower pale stripe was inflated and rather overlapped the ventral legs ; that the surface of the head and the body were slightly roughened with minute granulations, especially on the thoracic and three last segments, which bore a number of minute black points, and the rest of the upper surface was faintly freckled with rather darker green than the pale ground ; that the ocelli were black, and the anal shield fringed with a few fine hairs ; and, as they matured, their glaucous tint gave way to a paler and more yellowish-green.

The slender pupa is three-quarters of an inch in length, two lines across the arched thorax, where it is widest, though the head, with its large prominent eyes, is almost as wide ; the top of the head is a trifle flattened, and has a beak-like process projecting forwards of a flattened triangular shape, its base lying across the head between the eyes ; the abdomen tapers very gradually towards the anal portion, which ends in a prolonged and blunt flattened tip, furnished with a circle of exceedingly minute recurved hooks ; the wings, antennæ, and legs are plainly developed, and the proboscis extended at full length down the abdomen, from which

it lies wholly free towards its extremity. Its colouring at first, and up to within four days of the advent of the imago, closely resembles that of the last larval period, viz., a very pale and delicate yellowish-green, on which all the lines of the larva, though faint, are distinctly to be seen; the first indication of its approaching change is a gradual suffusion of pink over the thorax, which, with the wing covers, in twenty-four hours becomes of a dingy greyish-purple hue, the back of the abdomen a light brownish-olive tint, the divisions appearing as paler rings, the beak and tail purplish-grey. In this advanced stage, the change of colour is considerable even in an hour or two, it grows by degrees deeper olive on the back of the abdomen with a dingy purple dorsal stripe; as the body and thorax darken to purplish-black, so in proportion do the frontal and caudal projections fade away to a greyish ashy paleness, and become semi-transparent, as though empty; finally, the surface becomes as though covered generally with a misty reddish-grey bloom. It is in the purple blackish stage of colour that the fine cincture, drawn tight round the front of the thorax, and secured obliquely a little behind to each side of its abode by a thickening of the silk, is most plainly seen by its whiteness; the few stout threads that cross over the pupa at each end, more or less obliquely, do not touch it at all, but serve as security for its habitation, and possibly as protective outworks while it lies fastened on its silken carpet.—WM. BUCKLER, Emsworth: *July 22nd*, 1873.

Pachnobia alpina bred.—While grubbing for *Coleoptera* at Braemar during the early part of this summer, I found a pupa under moss on a hill side; but, having in the natural course of events sat upon and smashed the box in which I had put it, I threw it on the window sill, thinking the pupa must be killed. However, when packing up on the morning of my departure, I saw a moth walking up the blind, which, on examination, proved to have come out of the broken box, and to be a fine specimen of *Pachnobia alpina*.—JAMES S. ALLIN, 20, Beaumont Square: *August 15th*, 1873.

Description of the larva of Miana literosa.—When shaking seed-capsules of *Silene maritima* for larvæ of *Dianthæcia capsophila*, near Onchan, Isle of Man, in the middle of June last, a *Noctua* larva dropped into the net, which, from its mealworm-like appearance, I at once put down as that of a *Miana* or an *Apamea*, and being too late in the season for the other species, I suspected it might be the hitherto undetected larva of *Miana literosa*; so, on reaching my hotel, took down a description, and put it away with some *Silene maritima*, &c. It was apparently full-fed, and I do not know whether it ate at all after I found it; indeed, probably the *Silene* had not been its food, but some of the grasses growing with it. In a few days it spun up in an empty capsule of *Silene*, and soon changed to a shining red pupa, and on July 28th a beautiful *Miana literosa* emerged from it.

Length about three-quarters of an inch, and slender in proportion; head small and globular, narrower than the second segment; body cylindrical and attenuated towards the extremities; there is a horny plate on the second, and a similar one on the anal segment; segmental divisions distinct; skin tough and wiry, giving the creature the look and handle of a mealworm.

Ground colour dingy ochreous-yellow, with clearly defined broad purplish stripe

along the dorsal region, through the centre of which runs the medio-dorsal line of the paler ground colour; there are no perceptible sub-dorsal or spiracular lines; head very dark brown and shining; the plate on the second segment wainscot-brown edged with dark brown, that on the anal segment wainscot-brown; spiracles very distinct, black. Ventral surface and prolegs uniformly ochreous-yellow, legs wainscot-brown.—GEO. T. PORRITT, Huddersfield: *August 14th*, 1873.

Note on the larva of Polia nigrocincta.—Last week, I, with Messrs. Roxburgh and Greasley of Liverpool, spent a few evenings in the Isle of Man searching for larvæ of *Polia nigrocincta*. For several nights, *Statice armeria* and *Silene maritima* (the stated food-plants of the species) were examined, but only a few scattered larvæ were found. On Wednesday, Mr. Greasley collected several on *Plantago maritima*, but had to leave the island next morning. The day turned out wet, so we did scarcely anything in the evening, but on our last night (Friday) Mr. Roxburgh and I worked the *Plantago maritima* alone, and in a short time had boxed thirty-two larvæ from it, Mr. Roxburgh taking the lion's share. From this it would seem that this is the most general food of the species.—ID.: *June 23rd*, 1873.

Description of the larva of Phycis (?) Davisellus.—I have received from Mr. Henry Bartlett three larvæ of this species in a fine, loosely spun, open web on a piece of furze, the largest of which measures between five and six eighths of an inch in length; its form is tolerably cylindrical, the head full and rounded at the sides, the second segment a trifle larger, and the third a trifle larger still, being the same size as the following segments to the end of the tenth, from whence it tapers gradually to the end of the thirteenth; the segments beyond the thoracic are on the back well defined by a deep wrinkle, and sub-divided by another wrinkle (equally deep) into two unequal portions, the greatest portion in front; the larva is more wrinkled along the sides, the spiracular region being a little inflated and puckered; the segments of the belly are deeply divided and transversely wrinkled; the anterior legs well developed, the ventral and anal legs moderately so, and placed much beneath the body; the skin is slightly glistening on the head, the back of the second segment, and legs, but all the rest, though smooth, is without gloss.

With regard to colour, the dorsal line is blackish-brown, bordered with a line of very pale drab, next with a ragged-edged stripe of deeper reddish-drab, and this in turn by a stripe of very pale drab, on which are placed the blackish tubercular dots in rings a little paler than the ground. Along the sub-dorsal region is a very broad, conspicuous, blackish-brown stripe, in bold relief to the foregoing as well as to that which follows below, which is, in fact, a repetition of the two pale, narrow, drab stripes, having a darker, reddish-drab, ragged-edged, broader stripe between them; the belly is of a uniform, rather deeper reddish-drab, slightly inclining to greyish; the head has a pale drab ground colour, but is so thickly marked with blackish-brown spots and curved blotches as to show but little, chiefly on the crown; above the mouth is a transverse whitish band, and the bases of the papillæ are also whitish; on the second segment the dorsal line is represented doubly, enclosing a fine thread of pale drab; at the beginning of most of the segments on each side of the back is a transverse row of four or five small blackish-brown dots, seen only while the larva

is in motion, being hidden at other times in the segmental folds; on the side of the third and twelfth segments, situated in the broad dark stripe above mentioned, is a characteristic ocellated spot, whitish-grey with black centre, bearing a fine pale hair, longer than that emitted by the ordinary tubercular dots distributed along the sides and belly; the spiracles are whitish-drab, ringed with blackish; the anterior legs are reddish-brown, the ventral legs spotted and tipped with dark brown.

In the two smaller examples, the broad blackish-brown stripe has a line of reddish-drab blotches through the middle of its course, though but a faint trace only remained of them in the largest example.—WM. BUCKLER, Emsworth: *July 23rd, 1873.*

Asychna profugella bred.—Some four years ago, I met with this species at Witherslack flying briskly in the afternoon sunshine round a yew tree. Last September, when larva hunting, I noticed lots of the common gentian growing near this yew tree, and though I could find nothing feeding on the gentian, I collected at random a quantity of the seed-heads, and have now bred from them nine specimens of *Asychna profugella*. Judging from this experience, it might not be a bad plan to collect seed-heads of other plants at random, and to note the results.—J. B. HODGKINSON, 15, Spring Bank, Preston: *July 16th, 1873.*

Note concerning the metamorphoses of Batrachedra præangusta.—Excepting a vague rumour that the larva lives between united poplar leaves, I am not aware that anything has been recorded concerning the transformations of this curious and tolerably common little moth. It is abundant on the trunks of 'black Italian' poplar and *Populus alba* in my colleague Dr. Knaggs' garden at Kentish Town; and I have there more than once sought for its larva without success, though no one can possibly doubt that it feeds upon poplar in some way or other. I am, however, able to give information regarding its pupal stage. On the 30th ult., the moths were swarming on the trees, and, upon closely inspecting the trunks and branches, I found indications of little webs spun over small crevices in the bark, but so covered with dust and minute lichens with which the bark was also clothed, that only the closest scrutiny revealed them. I thought a clue presented itself, and sliced off a number of morsels of bark upon which there were indications of these webs. To-day a specimen of *B. præangusta* is in the box among the chips. This settles one stage in the history of the creature, but the larva and its mode of life still remain to be discovered. The webs are the more difficult to find because the puparium is not partially projected when the moth emerges.—R. MCLACHLAN, Lewisham: *8th August, 1873.*

Occurrence of Megalomus hirtus near Aberdeen.—To-day I received an insect from Mr. J. W. H. Traill, of Old Aberdeen, accompanied by the following letter:—"Enclosed in the quill is a specimen taken by me on Saturday (June 20th), a few miles south of Aberdeen, which appears to agree with the description of *Megalomus hirtus*. If it be that species, and therefore of interest to you, I hope 'you will accept it.' Mr. Traill had quite correctly determined the insect, which is a small individual of its kind. Possibly only one or two other British examples are in collections; the original was taken by the late Mr. J. C. Dale, at Duddingston,

near Edinburgh, on the 1st July, 1825, and was beautifully figured by Curtis as *Hemerobius fimbriatus*. Its rarity in Britain is unaccountable. There is just the possibility that two species are confounded under the name *hirtus*. I have about thirty examples in my collection from various parts of Europe, and the British insect appears to be smaller and darker than most of the others, agreeing actually with only one specimen from the Island of Oesel in the Baltic.—ID.: 24th June, 1873.

Neuroptera at Weybridge.—The excursion of the Entomological Club to Weybridge on the 5th inst. was not favoured by very fine weather, for, although there was but little rain, the sky was overcast for nearly the whole day. My operations were confined to the fir-wood and ponds about St. George's Hill. *Pyrrhosoma tenellum*, of which I had taken one or two individuals on each of the two preceding years' excursions, was tolerably common, and no doubt only needed sunshine to make it actually abundant. *Peripsocus alboguttatus* was very common. One specimen of *Nothochrysa capitata*, an insect of great rarity, and which I had never before seen alive, was beaten from fir, and the same trees produced four examples of *Hemerobius inconspicuus*. I also found one *Sisyra terminalis*, which, however, is usually common on the banks of the Wey. In *Trichoptera*, the best species was *Setodes tineiformis*.—ID.: 7th July, 1873.

Notes on a British bug.—I have lately caught at Reigate, on *Ononis arvensis*, several specimens of a bug which appears to me to be known in our English collections under two distinct names—*Oncotylus tanaceti*, Fall., and *Macrocoleus sordidus*, Kbm., neither of which I believe to be correctly applied to it. I have specimens under both names from Messrs. Douglas and Scott, and these specimens are clearly referable to the same species; and to my mind it is equally clear that they cannot be referred rightly either to *tanaceti*, Fall., or *sordidus*, Kbm. I have not Fallén's original description before me, but Fieber and Kirschbaum both agree in the characters they assign to his species. They describe *tanaceti* as green or golden-green, covered with black (Fieber says expressly only black) hairs, and with the end half of the femora spotted with brown. The size is given by Kirschbaum as $2\frac{1}{4}$ lin., by Fieber as $2\frac{3}{4}$ lin., thus making it about the size of *Macrocoleus molliculus*, or, if anything, larger. It is said to occur on *Tanacetum vulgare*. I have seen a specimen named *tanaceti* from Dr. Scholtz, which Mr. Douglas very kindly lent me, agreeing exactly with the descriptions of the above-named authors, and quite distinct from our species. Ours is considerably smaller, of a dirty yellowish-green (or, in some specimens, brownish) colour, has only the ends of the femora spotted, and has golden-white hairs mixed with the black bristly ones; besides this and other characters, it occurs on *Ononis arvensis*. *Sordidus*, Kbm., is described as being black-haired above, and white-haired below ("supra nigro pilosus, infra albido pubescens"), and therein differs from ours; it is also said to have the membrane without the dark cell, which ours distinctly has, still the descriptions very nearly fit our species; but they all compare it with *tanaceti*, to which, so far as I can make out, it has no relationship. In my continental collection, I have this same species from M. Meyer Dür under the name of *Tinicephalus hortulanus*; Mr. Douglas has also lent me one, bearing the same name, from Dr. Scholtz, and I find that our specimens agree well

with Fieber's description of that species. But Meyer's original description is evidently taken from quite a different insect, as he compares *hortulanus* to *Plagiognathus viridulus*, to which ours has no resemblance. I should therefore propose the following amended synonymy, and should be very glad of any information as to what *sordidus* and *hortulanus* really are.

Sp. n. (new name wanted)

tanaceti, D. and S. (*nec* Fall.), *Oncotylus*.

sordidus, D. and S. (*nec* Kbm.), *Macrocoleus*.

hortulanus, Fieb. (*nec* Mey.), *Tinicephalus*.

As to which genus should be applied to our species, I am unable to offer an opinion, as, to my mind, the characters on which the genera of *Capsidæ* are based are utterly unintelligible. I do not now propose to re-name the insect, in case further investigation should prove that I have been too hasty in my conclusions.—EDWARD SAUNDERS, Reigate: *August 1873*.

Note on capture and habits of Loxops coccineus.—Before the appearance of the description of this insect in last month's Magazine, I had succeeded in capturing several specimens on an ash tree. It appears to be exclusively attached to old trees, and in one or other, or all of its stages of development, to find nourishment amongst the seed vessels, as it is from amongst these the greater number of my specimens have been beaten. None of the saplings round about here, which I have carefully searched, have yielded an example. As a rule, even the lowest branches of the ash are difficult to reach, and I was obliged to drag a cart, which stood a little way off, beneath the coveted spot, and mount upon it. I do not remember, amongst my many wanderings on the continent, any place where this tree grows except singly, and it may be owing to this fact that the insect has hitherto been looked upon as rare.—JOHN SCOTT, 37, Manor Park, Lee: *4th August, 1873*.

Loxops coccineus, Meyer.—In the year 1871, Mr. Edward Saunders took this species at Reigate, and, guided by his information, I find it plentiful in this neighbourhood on ash,—not saplings, but seed-bearing trees. I have had twenty examples at one time in an umbrella, but the males fly out instantly, and the greater portion captured are therefore females. A week ago, examples were immature and pale, those captured now have obtained their full flush of red, and are very beautiful. The males are much darker than the females, but in the latter the characteristic yellow spots on the elytra are more numerous and conspicuous. The form of the female is also more oval than that of the male. On the continent, the species is everywhere quoted as rare, and taken singly; which may be because ash trees are scarce, or the branches inaccessible, or perhaps search has not been made during the (probably) short period of the insect's appearance. The food plant seems not to have been known.—J. W. DOUGLAS, Lee: *August 9th, 1873*.

Note on Idiocerus H-album, Fieb. (*vide ante*, p. 26).—I have just discovered that the habitat of this species is Lombardy poplar (*Populus pyramidalis*), on which it is now not uncommon. The character H on the elytra is very white, and plainly

seen when the insect is alive. It is worth notice, that, although in other respects the species is an *Idiocerus*, the lamella on the antennæ of the ♂ (which is one of the chief characters of the genus) is wanting.—*Id.*: August 16th, 1873.

The Entomology of our novel writers.—We have before (vol. ix, p. 45) had occasion to notice a lack of ordinary entomological knowledge in popular novelists. In a tale ("Lady Bell") now being published in "Good Words," the following passage occurs in the No. for July. Time supposed to be the month of March :—"The day was so complete in its spring character, that at sundown a little cloud of midges seemed to start into life and hover in the air. 'How short their day is!' said Lady Bell, regretfully for the ephemera. 'I know they are only creatures of a day, but 'to come and go so soon,—if they had waited for a few more months, they might 'have danced through a few more hours, and not been pinched by so sharp a death. 'Who knows?'" Our author is evidently a keen observer, and has been much struck by the swarms of the winter gnat (*Trichocera hiemalis*), but has confused the terms "midge" and "ephemera." The temperature of "a few more months" would probably not be at all conducive to "a few more hours" existence in this insect. Who knows?—EDS.

Reviews.

ON THE ANCESTRY OF INSECTS, 'printed in advance' from chap. xiii of 'OUR COMMON INSECTS,' by A. S. Packard, Jun. Salem, Naturalists' Agency, 1873.

The question as to the origin of insects has of late occupied the attention of many of our very best entomologists of the evolutionist school; and, although much that has been written on the subject must be considered as purely speculative, all thinking naturalists must give the various writers credit for having discovered many most remarkable facts, facts that are accepted as such even by the most conservative of anti-evolutionists. Among those writers, the most prominent are Darwin, Lubbock, Fritz Müller, Brauer, A. Dohrn, and the author of the pamphlet now under consideration. Several authors (*e. g.*, Lubbock and Brauer) consider the most primitive type of Insecta now existing to be represented by the curious genus *Campodea* among the *Poduridæ*, and that from this type all forms have originated. Others, such as F. Müller and Dohrn, look to the *Crustacea* (in their *Zöea* or larval-form) as being the stock out of which insects have been evolved. Our author goes a step farther, and thinks that the ancestry of insects should be directly traced to the worms. Without risking an opinion on the merits or demerits of any of these theories, we cannot avoid asking whether the writers do not place too much stress upon external form, which in some cases may be more owing to special adaptation to modes of life (or, from a Darwinian point of view, acquired in consequence of these habits), than as the results of an actual relationship? Be that as it may, the researches of evolutionists have proved the utter fallacy of the old metamorphic classification of insects into *Metabola* and *Ametabola*, for they show that the cases in which complete metamorphosis exists are comparatively rare, and that in many so-called metabolic insects the various changes up to the pupa state are as ill-defined as in those with metamorphosis acknowledged to be incomplete. More than this :—we now know as proved

facts that in certain cases the so-called *larvæ* and *pupæ* of some Dipterous insects are capable of producing young before they have assumed the final stage. With facts like these before him, the most determined naturalist of the old school must pause before he dismiss the theories of the evolutionists as the wild phantasies of visionaries. Dr. Packard incidentally treats upon the origin of wings, but makes no mention of the theories of Landois and Plateau, who produce evidence to prove that they are developed from the thoracic tracheæ. He holds a somewhat similar view, but he considers wings may be represented by tracheal appendages on *any* part of the body of a larval form, such, for instance, as the gill-like tails of the larva of *Agrion*. This, to us, is a very startling theory, for we fail to see any necessity for homologizing such caudal appendages with the thoracic wings of the imago; like wings, they may be external expansions of tracheæ, but to call them 'aquatic wings' looks like inventing an unnecessary term.

The pamphlet is illustrated by many exceedingly good wood-cuts, and is valuable, not only for the author's original views and observations, but also for the excellent *resumé* that it contains of the writings of most naturalists who have attended to the subject of ancestry in connection with entomology.

FIFTH ANNUAL REPORT ON THE NOXIOUS, BENEFICIAL, AND OTHER INSECTS OF THE STATE OF MISSOURI; by Charles V. Riley, State Entomologist. Jefferson City, Mo.: 1873, pp. 1—160.

We have, on a previous occasion, had the pleasure of noticing Mr. Riley's Annual Reports, made in his official capacity as State Entomologist for Missouri; and that under consideration is quite equal to those preceding. Whether regarded from its utilitarian aspect in connection with the habits of the insects treated upon, or from a purely scientific point of view, its contents are full of interest and lasting value. The excellent instructions to young entomologists on the modes of collecting and preserving insects will do much good in a country like the United States, where, in consequence of the vast extent of territory, beginners are almost as isolated as they were in Europe in the last century. The illustrations are copious, and remarkable for their fidelity, most of them being original. Entomologists may justly envy Mr. Riley's skill with the pencil. All of us are acquainted with the wonderfully accurate drawings by Westwood, which, perhaps as much as anything else, have made the world-wide reputation of that veteran worker. It is not idle flattery to say that Mr. Riley's delineations are equal to Westwood's, though, perhaps, lacking the evidence of rapid perception of facies (imparting a shade of superficial roughness) which seems to follow the Westwoodian pencil. One chapter is devoted to "Stinging Larvæ," a subject that of late has occasioned some controversy in the columns of "Nature." Mr. Riley justly denounces the majority of newspaper paragraphs on this subject as "sensational items," and he adds that he is acquainted with 15 larvæ in his State that have urticating powers, but in every instance the action is mechanical and not from actual venom. It is high time that the sensational and superstitious element should be eliminated from popular Natural History, and Mr. Riley deserves, and has, our thanks for the part he has taken towards obtaining this end.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(Continued from page 67).

Anchylopera ramella, Wilk.—Not *ramella*, Linn., which is Wilkinson's *Hedya Paykulliana*. Mr. Doubleday, in the supplement to his lists, corrects this to *harpana*, Hübn., and Dr. Wocke again alters it to *laetana*, Fab. (1775), but this is an unfortunate alteration, since it seems clear that Fabricius meant *lactana*, by which name he notices it in his "Species insectorum" (1781). I can see no advantage in perpetuating an error, and think that *lactana* should be adopted.

This species seems to be an aspen feeder.

Anchylopera Mitterbacheriana, Schiff.

Anchylopera upupana, Tr.—I am indebted to my friend Mr. Machin for the loan of this and several other very rare and valuable species, and for permission to send them to Germany.

Anchylopera subarcuana, Wilk.—Some months ago my friend Mr. Douglas wrote to ask me to send him specimens of *subarcuana* from the Norfolk fens, and, upon receiving them, assured me that they were quite distinct from the insect which he described under this name in the Transactions of the Entomological Society of London, vol. v, p. 21, and which he had since ascertained to be merely a variety of *biarcuana*, Steph. Wilkinson's description of *subarcuana*, however, agrees most accurately with the fen specimens, from one of which he evidently made it, so that he has either accidentally or intentionally adopted the name of a mere variety for a truly good species. It however happens that this species was, previously to the publication of Wilkinson's work, described by Herrich-Schäffer under the name of *inornatana*, which name, therefore, has priority, and the synonymy will be

inornatana, H.-S.

subarcuana, Wilk. (*nec* Dougl.).

Dr. Wocke, however, sinks it as a variety of *biarcuana*, in which I totally disagree with him, since it not only differs in the form of the fore-wings (which are narrower with more pointed apex), but also in its habits, which are perhaps the most sluggish of any species in the group. Nothing apparently will induce it to fly during the day, and even at sunset it only flits for a few yards among the long grass, dropping and hiding itself instantly if alarmed.

A variety, of which the ground colour is grey and the markings indistinct, has been met with in the New Forest, and has been supposed

to be a distinct species, but I can find no distinguishing characters. On the other hand, a specimen from Scotland, kindly lent me by Dr. Buchanan White, is richly clouded with reddish along the median line, and approaches *biarcuana* in brightness of colour, although preserving the peculiar form of the wings.

Prof. Zeller, with his usual kindness, has sent me a fine series of *inornatana*, H.-S., thereby enabling me satisfactorily to identify this species. He says that its larva feeds on *Salix depressa*.

Anchylopera diminutana, Haw.

Anchylopera biarcuana, Steph.—Known in Germany as *fluctigerana*, H.-S., under which name Prof. Zeller sent me specimens. Dr. Wocke, however, gives *biarcuana* as the prior name. Zeller says "I have bred it from smooth and woolly-leaved *Salices*."

Anchylopera uncana, Hübn.—*Uncella*, Hein., is a later name by which this species is known in Germany. M. Jourdheuille says "larva on heath."

Anchylopera myrtillana, Tr.

Anchylopera Lundana, Fab.—Known in Germany as *badiana*, Dup., a later name, and corrected in Dr. Wocke's list.

Anchylopera (Phoxopteryx) paludina, Barrett. Described in Ent. Mo. Mag., vol. viii, p. 134, and also (with a figure) in the Entomologist's Annual for 1872. It is found also in Germany, where it has been hitherto regarded as a variety of *Lundana*.

Anchylopera derasana, Hübn.—This species has been reared by Mr. Machin from larvæ feeding on *Rhamnus frangula*. He contributed an interesting notice of its habits, some years ago, upon which I cannot now lay my hand.

Anchylopera obtusana, Haw.

Anchylopera comptana, Fröl.—In M. Jourdheuille's calendar the larva of this species is said to feed between leaves of *Potentilla cinerea*.

In addition to the localities on the north and south downs given by Wilkinson, I have to add Durdham Down, near Bristol, where it has been found commonly by Mr. W. H. Grigg, and also, as I am informed, by Messrs. Sircom and Vaughan.

Anchylopera siculana, Hübn.

Anchylopera unguicella, Linn.—M. Jourdheuille says "larva on heath."

Bactra uliginosana, Westw.—This is *Lorquiniana*, Dup. (1838); and that name, being anterior to Westwood's, must be adopted. According to M. Jourdheuille's calendar, the larva feeds on *Lythrum salicaria*.

Bactra lanceolana, Hübn.—This species varies so greatly in size and markings, that there is a constant tendency to describe its different forms as distinct species. *Nigrovittana* of Stephens is one of these forms, and is still considered distinct by some Entomologists. It is not confined to Scotland; I used to take it, in company with other forms of *lanceolana*, in marshy meadows near Haslemere. I think it is usually a female variation.

Another form (very large) is found on the coast in salt marshes, and is also thought by some to be a distinct species. It, however, cannot be separated from some of the specimens of *lanceolana* from Ranworth fen, and I suspect that this species attains a larger size in very wet situations. On the other hand, specimens of the second brood are sometimes as small as *Anchylopera comptana*, and pale cinereous with hardly a trace of markings, so that they can hardly be recognised as this species.

Bactra furfurana, Haw.—A very widely distributed species, since it is found also in North America, but smaller and paler than with us, as also is the case in Germany.

Argyrotoza Conwayana, Fab.—In M. Jourdheuille's calendar the larva is stated to feed in berries of privet and barberry, and to enter the pupa state outside under a white web. It has also been bred from the seeds of the ash.

Dictyopteryx contaminana, Hübn.—Prof. Zeller says that the larva feeds also on sloe, and in *Sorbus* blossoms. Mr. Doubleday finds it abundantly on cherry, and thinks that it will feed on various other trees.

Dictyopteryx Shepherdana, Steph.—Not at all rare now; indeed, rather common among *Spiræa ulmaria* in the fens of Norfolk and Cambridgeshire. It feeds, with *Tortrix costana* and *Paramesia aspersana*, in the tops of the *Spiræa*, twisting the leaves together. In bred specimens, the "button" tuft of scales is very distinct on the forewings. Wilkinson seems to have overlooked this; hence he has placed it here instead of with its close allies *Peronea* and *Paramesia*.

Dictyopteryx Læflingiana, Linn.

Cræsia Bergmanniana, Linn.

Cræsia Forskaleana, Linn.

Cræsia Holmiana, Linn.

Hemerisia Rhediella, Clerck (Linn.).—According to M. Jourdheuille's calendar, the larva feeds in the *green berries* of the hawthorn. This differs from Wilkinson's account, but seems likely to be correct.

Chimatophila mixtana, Hübn.—This has been bred from dark green larvæ feeding on *Calluna vulgaris* by Mr. T. Wilkinson of Scarborough (see Weekly Entomologist, p. 111, and Ent. Annual, 1863, p. 152). M. Jourdheuille says: "between shoots of *Calluna vulgaris* joined together."

Oxygrapha literana, Linn.—M. Jourdheuille says: "larva on oak, pupa *between the leaves*." In this case it can hardly feed at all on lichens. The perfect insect, however, is very fond of sitting among lichens on oak trunks, from which it can only be disturbed by the breath or hard blows—to see it is simply out of the question.

Oxygrapha scotana, Gn., Wilk.—Changed by Mr. Doubleday in his List to *Treveriana*, Hübn., Tr., but *niveana*, Fab., also refers to this species, according to Dr. Wocke and Prof. Zeller, and this name must be adopted. Zeller tells me that our form with yellowish colour and a red dot is extremely rare in Germany, while the white and uniform variety is very common. According to M. Jourdheuille, the larva feeds between leaves of birch.

Oxygrapha scabrana, Fab.—Dr. Wocke sinks this name in favour of *parisiana*, Gn., but it does not clearly appear why; certainly *scabrana* is long anterior in date, but probably Wocke is not satisfied as to the identity of the Fabrician species.

Oxygrapha Boscana, Fab.—By some this is supposed to be a second brood of the previous species.

Peronea Schalleriana, Linn.

Peronea comparana, Hübn.—Mr. Doubleday in his List sinks this into a variety of *Schalleriana*, and, according to my experience, the two species (or forms) are nearly always to be found together. Nevertheless, Dr. Wocke separates them, and Prof. Zeller confirms him in this, pointing out the white edging before the costal blotch as a good

and constant character in *Schalleriana*. The brick-red colour upon which Wilkinson also relies is not so certain, and is, moreover, shared by some specimens of *comparana*.

Peronea potentillana, Cooke (see note to *comparana* in Wilkinson).

proteana, H.-S. (recorded as British in Ent. Ann., 1871, p. 9).

I find it necessary to associate these two forms together, since the balance of evidence is against their distinctness as species. Mr. Doubleday admits *proteana* (with *potentillana* as a var.) into the supplement to his list, but Dr. Wocke sinks both, as well as *comariana*, Zeller, into varieties of *comparana*, although he admits *Schalleriana* as distinct. Professor Zeller, to whom I have submitted specimens of *proteana* from Norfolk, and *potentillana* from Lancashire and Yorkshire, considers them both varieties of his *comariana*, and he has sent specimens of quite different varieties to show the extent of variation of the species. Having examined all these with great care, I can find no reliable distinguishing characters between them, and am decidedly of opinion that he is correct. The forms of *wings* and *markings* are accurately the same in all three, and although *proteana* has a peculiarly silky appearance, which seems at first sight to distinguish it, intermediate specimens blend insensibly with the other forms.

The variety *proteana*, as known in this country, may be thus described—

Head, palpi, and thorax grey; fore-wings pale slaty-grey, reticulated with dark grey lines. On the inner margin near the base arises a brown streak, extending obliquely one-third across the wing. On the costa reaching from before the middle to near the apex is a flatly triangular, reddish blotch, from the apex of which a fascia of pale reddish-grey extends to the anal angle. In some specimens this fascia is nearly obsolete, while in others the entire apical portion of the wing is of the same reddish-grey colour. Hind-wings whitish, tinged with grey at the apex.

In the variety *potentillana*, the ground colour varies through different shades of reddish-grey, the blotch is distinct, varying from reddish-brown to dark brown, and the fascia generally but faintly indicated, while in the varieties of *comariana* sent by Zeller the ground colour is yellow-grey, the costal blotch reddish-brown, but sometimes nearly obsolete, and the fascia but faintly indicated. All these forms have the reticulation of delicate dark grey lines, and the narrow, grey oblique streak near the base of the dorsal margin.

In the Ent. Mo. Mag., vol. vii, p. 233, is an interesting paper by Baron Von Nolcken (translated by the Editors) upon this species, in which he describes the larva and its variations, shows that each variety produces the different forms of the perfect insect, and proves

most conclusively (as I think) that Prof. Zeller is correct in uniting them. Some of the varieties approach in appearance to *comparana*, but setting aside the constant difference in size, the fact that *comparana* is single brooded, while the present species has two broods both fertile, seems sufficient to prove that Wocke is wrong in uniting them. *Comariana*, Zeller (1846), being the oldest name, must be adopted for this species.

Peronea tristana, Hübn.—Dr. Wocke substitutes *Logiana*, Schiff. (1776), apparently the earlier name. M. Jourdheuille says that the larva feeds on *Viburnum opulus*, as well as *V. lantana*.

Peronea rufana, Schiff.—Altered by Mr. Doubleday, in the supplement to his list, to *autumnana*, Hübn., there being another *rufana* in the genus *Euchromia*. I cannot, however, think that there is any danger of confusion arising between two species so little allied, and am of opinion that the name *rufana* should be retained for this species. Prof. Zeller says it is found in woods on *Rubus idæus*, but Mr. Stainton (Manual) and M. Jourdheuille say on sallow.

Peronea Lipsiana, Schiff.—Certainly distinct from *P. rufana*, and admitted to be so by Mr. Doubleday in his supplementary list. Its fore-wings are much broader than those of that species. Zeller says: "among *Vaccinium myrtillus* and *V. vitis-idæa* in woods where there is "no *Myrica*."

Peronea favillaceana, Hübn.—Corrected by Wocke, and by Mr. Doubleday in his Supplement, to *sponsana*, Fab., an earlier name.

Peronea maccana, Tr.

Peronea Hastiana, Linn.—This feeds on many species of *Salix*—*capræa*, *viminalis*, *purpurea*, *fusca*, &c.

Peronea umbrana, Hübn.—Zeller says: "found among *Carpinus* "(hornbeam), but rare."

(To be continued).

NATURAL HISTORY OF BRITISH SPECIES OF DELTOID LEPIDOPTERA OF THE GENUS HERMINIA.

BY W. BUCKLER AND THE REV. J. HELLINS, M.A.

HERMINIA BARBALIS.

I (W. B.) am indebted to Mr. W. H. Harwood, of Colchester, for two larvæ of this species, kindly sent to me on the 12th of April, 1871, after their hibernation; by the end of the month they spun up, and the moths appeared on June the 22nd and 24th.

The larvæ were fed on female birch catkins, and were very sluggish in their movements. I made from them the following description :—

The full-grown larva is five-eighths of an inch in length, thick and stumpy in proportion, but thickest in the middle, the head globular and smaller than the second segment, the segments and transverse folds well defined, all the legs tolerably developed; when the larva is stretched out in walking, the thoracic segments appear rapidly tapering to the head, and the three last segments taper off, but not nearly so much; the ventral surface is slightly flattened.

The ground colour is a deep rusty reddish-ochreous, and there is a pattern of diamond figures on the back and sides as follows :—down the back runs a row, one diamond on each segment, the widest part behind the middle of the segment, and the blunt ends meeting at the segmental divisions, this row is filled up with dusky or faint blackish freckles, and is traversed by the dorsal line, which is darker blackish; next to this comes a row of diamonds in outline, with the widest part of each coming at the segmental fold, the ends meeting just behind the middle of each segment, where the dark dorsal diamond is at its widest; and outside this is another row, in which each diamond outline is contained within a segment, the ends meeting at the folds, and the widest part extending from the dark dorsal diamond to the spiracle; these two lateral rows by comparison are only outlines, though the ground within them is in truth covered with freckles, but so faintly as to be scarcely noticeable; the usual dots are blackish, set in rings of the ground colour, the spiracles are black, the segmental divisions pale ochreous; the head rather dusky; the skin soft and velvety.

The *débris* of the food was spun together loosely for a sort of cocoon; the pupa is barely half an inch long, of moderate bulk, the tip of the abdomen rather rounded and furnished with several curled-topped spines; the pupa case is finely punctated, and with scarcely any gloss, excepting at the abdominal incisions, which are rather shining; the colour is blackish-brown, with the rings rusty-red.—W. B.

HERMINIA TARSIPENNALIS.

My (W. B.) first acquaintance with the larva of this species I owe to the kindness of Mr. H. Doubleday, who sent me one found at night on sallow in Epping Forest on April 28th, 1868. It had sallow and other kinds of food given to it, but did not appear to eat anything, and on the 1st of May spun a leaf down to the bottom of its cage, beneath which it pupated, after lining the cavity with a coating of silk; the moth, a fine specimen, appeared on the 15th of June.

My next opportunity of studying the larva was most obligingly afforded me by Mr. J. R. Wellman on August 20th, 1871, who presented me with three examples of the summer brood, about three parts grown, which had been reared from eggs, and were feeding well on *Polygonum aviculare*; by the 25th of the month they had all spun up amongst the *Polygonum*, and the moths appeared from September 10th to 14th.

The full-grown larva is from six-eighths to seven-eighths of an inch in length, moderately stout and cylindrical, tapering just a little at the two last segments, and also in front from the third segment to the head, which is smaller than the second segment, and globular.

The ground colour is a dull brownish-grey, finely freckled with a darker tint, both of which below the spiracles become rather paler; on the second segment is a darker dull plate, and the head is darker still; the blackish-grey dorsal line is somewhat interrupted on the middle of each segment; the greyish paler brown subdorsal line, which is continuous on the thoracic segments, is indicated only by a short dash at the beginning of each of the others, and below this dash there comes lower down the side a thick, short, blackish streak, bifurcated a little at its hinder end; the spiracles are black; the tubercular dots are blackish, each in a ring a little paler than the ground colour; the skin is without any gloss, but covered with an exceedingly fine pearly pubescence, best seen on the parts retiring from view.

The pupa is a little more than half an inch in length, of moderate stoutness, the abdomen very slightly tapered off towards the tip, which terminates in a spike of two diverging recurved spines, the base encircled with six others of shorter lengths. Its colour is dark brown with but little gloss, the surface being very minutely pitted, excepting the abdominal divisions, which are rather shining.—W. B.

HERMINIA DERIVALIS.

On August 5th, 1872, some eggs of this species were most kindly sent to me (W. B.) by Mr. W. H. Harwood, who has devoted much time and attention in elucidating its history.

Some of the young larvæ hatched on the 6th, and devoured their egg-shells,—and at first I gave them fallen leaves of willow and bramble, which probably became too dry, for, on the 26th, most of them were dead, but the survivors looked healthy.

The newly-hatched larva is about one-sixteenth of an inch long, with a large pale brown head, the body whitish and pellucid, its internal broad vessel of dark brown shows through the skin to the full width of the thoracic segments, and from thence tapers to a blunt point within the tenth segment; the usual dots are blackish and shining, and bear each a long pale hair.

By August 26th their colour had become rather browner, and a narrow brown plate was visible on the second segment. On October 15th Mr. Harwood kindly added to my stock several more of the brood, which had been fed on withered oak leaves. By the time the larva was a quarter of an inch in length, the skin was no longer transparent, but opaque rusty-brown, assimilating in appearance to the fallen leaves which formed its food: this dress was retained till after hibernation, but in May, after a moult, the skin became more velvety, and the colour darker brown.

Cold weather coming on, I noticed on the 14th of November that they were inhabiting little nooks and corners of the leaves, which they had formed by turning down the edges, and securing by three or four stout silk threads, or else by joining a part of one leaf against another by similar means. Following the directions I had received with them, I had them all together with a plentiful supply of fallen oak leaves sewn up in a bag of calico, and tied to a branch of a tree three feet from the

ground, in which situation they remained nearly two months, until threatened with severe frost, and then I brought them indoors, and placed them in the window of a cool room, where they remained undisturbed up to the 9th of April, 1873, on which day I cut open the bag and found all the larvæ alive and well, one or two having just began to stir from their hibernacula. By the beginning of May most of them had moulted, and from henceforward fresh supplies of decaying oak leaves from time to time were fully appreciated, great quantities being devoured, and the larvæ at the beginning of June were half an inch long. On the 20th of the month, Mr. Harwood kindly gave me a further share of his stock, which were in advance of mine, and from the 4th of July they began to pupate; this change was effected either in corners, or between two leaves held together with a few short, stout, silken threads, a slight lining of silk round the interior holding the pupa steady by its tail. The moths appeared between July 15th and August 31st.

The egg is globular, with the shell smooth, but slightly reticulated all over in elongated hexagons, its colour whitish, but mottled with pale purplish-brown in nearly equal proportions. Just before hatching, the colour becomes altogether purplish.

The full-grown larva is nearly three-quarters of an inch in length, thick and fat in proportion, cylindrical, tolerably uniform in bulk, though the two or three hinder segments appear the stoutest, particularly when it is crawling; the thirteenth segment is tapered behind, and beneath its extremity the small anal pair of legs come very close together; the ventral legs are short and much beneath the body, the anterior legs are also small, the head is globular like others of the genus; the segments are well defined; the skin is soft, smooth, and velvety; its colour is dark brown, covered with an exceedingly short and fine pubescence resembling the pile of fine silk velvet; this, where the light catches, generally on the retiring parts, appears of a pearly whiteness. Very few details are to be seen: just a faint indication of a darker dorsal line, and a still fainter suggestion of a sub-dorsal line; the usual tubercular dots are black and only just discernible; the spiracles are of the ground colour ringed with black, and beneath them the ground colour is a paler brown than the back; the head is velvety like the body, and the narrow plate of rather darker brown across the middle of the second segment is divided dorsally by a thin line of the ground colour.

The pupa is nearly six lines long, smooth and cylindrical, moderately stout, the abdomen tapering off evenly, and ending in a spike furnished with two larger, and six smaller spines with curled tops; its colour is purplish-brown without gloss, excepting just in the segmental divisions of the abdomen; the terminal spines are reddish-brown.—W. B.

HERMINIA CRIBRALIS.

On July 25th, 1872, eggs of this species were kindly sent me (J. H.) by Mr. C. G. Barrett; unfortunately, I have missed the record of the date of hatching, but it must have been some time in August; early in September I noted that the larvæ would eat willow leaves, and they also ate *Carex sylvatica* and *Luzula pilosa*, on growing plants of which I put them out to hibernate. They were about half-grown (about half an inch in length) when they ceased feeding

for the winter, but only one survived to commence feeding again. On April 14th, it came up from among the close blades of the *Luzula pilosa*, where it had been hidden, and began to eat and grow; about the middle of May it moulted, and was full-fed about the end of the first week in June. When I saw that it had begun to shorten, I put it in a large chip box with some moss, and there it spun, and on June 13th turned to a pupa. The moth appeared on July 1st.

All I can now say about the egg is, that it was globular.

The larva is one of those plain dull-coloured things that do not change much, except in size, throughout their growth. When full-fed, it is rather over three-quarters of an inch in length, somewhat fusiform, being stoutest at the eighth segment, and thence tapering towards the head, and more rapidly towards the tail; perhaps its most noticeable feature is the extreme shortness of the second segment, which looks quite shrunk, and is about as wide as the head, but the head, being globular, has its rounded lobes a little projecting.

The ground colour is a pale grey-brown, freckled all over with tiny freckles of ochreous-yellow; the dorsal line is of a darker tint than the ground, and is edged with paler lines; the sub-dorsal line is paler than the ground; the spiracular region is also paler, and slightly inclining to ochreous; the spiracles are small, and black in colour; the usual dots distinct, being rather darker than the dorsal line; the belly paler than the back.

The cocoon was spun against the side of the chip box, and was of a longish oval shape, being more than five-eighths of an inch long, and less than three-eighths of an inch wide, extremely slight, being a very open network of silk, with bits of moss drawn in, but still with interstices left, through which the pupa could be seen. The smooth pupa is not quite half an inch long, slender, rather widening at the shoulders, but otherwise cylindrical, and tolerably uniform throughout, the last segment of the abdomen tapering to a blunt spike, which is grooved or fluted in two steps as it were, and its tip set with several small spines with curved ends; its colour dark rich brown, the edges of the wing-cases, and the segmental divisions in the abdomen, of a lighter reddish-brown.—J. H.

September, 1873.

DESCRIPTION OF THREE NEW CONTINENTAL AND ONE BRITISH SPECIES OF *LIBURNIA*.

BY JOHN SCOTT.

LIBURNIA MARSHALLI, *sp. n.*

Developed form.

♂. Testaceous or pale ochreous; keels of the head frequently almost white. *Face* brown, keels with a broad black margin, or the face almost entirely black. *Elytra*—nerves granulated, the granules somewhat remote, blackish.

Head testaceous or pale ochreous, keels frequently almost white. *Face* brown; keels with a broad black margin, or the face almost entirely black. *Antennæ* yellow, apex of the 1st joint narrowly black, 2nd joint at the base very narrowly, and the granulation distinctly, black. *Eyes* purplish or reddish-brown.

Thorax: *pronotum*—hinder margin and keels very pale yellowish, sometimes almost white; disc between the keels sometimes with a slight fuscous shade. *Scutellum* testaceous or pale ochreous, keels paler. *Elytra* pale, transparent; nerves, as far as the membrane, with a yellowish tinge, from thence to the apex fuscous or black; granulation minute but distinct, granules somewhat remote, hairs dark. *Membrane*—disc pale fuscous, marginal nerve black. *Legs* whitish, with a slight fuscous shade; *tarsi*—apex of the 3rd joint of the 1st and 2nd pairs narrowly black; *claws* of all the pairs black.

Abdomen above, black, posterior margin of the segments very narrowly (except the two last which are broadly) yellowish; beneath black, posterior margins of the segments very narrowly yellowish; last genital segment black, viewed from above, the posterior margin curves round inwardly, the two rounded apices white, somewhat approximating; from the side slightly concave; from behind somewhat U-shaped, the upper corners white, somewhat drooping, and with a distinct puncture before their apices. Length, $1\frac{1}{4}$ line.

♀. Unknown to me.

Somewhat like the developed form of *L. pellucida*, but the apical portion of the elytra is darker than in the last-named species; and the shape of the opening of the last genital segment when viewed from behind, as well as the styloid processes, are totally different.

Six specimens were taken by the Rev. T. A. Marshall (after whom I have much pleasure in naming this insect) during his last visit to Corsica.

LIBURNIA LETHIERRYI, *sp. n.*

Undeveloped form.

♂. Pitchy-brown, shining; *crown* alone, or crown and pronotum, or crown, pronotum and scutellum, testaceous. *Elytra* pitchy-brown, nerves distinctly granulated.

Head: *crown* slightly longer than broad, more or less clear testaceous, keels acute, prominent. *Face* brown, paler in some examples than in others, keels brownish-yellow. *Antennæ* yellowish or brownish-yellow.

Thorax: *pronotum* more or less testaceous or brown. *Scutellum* testaceous or pitchy-brown. *Elytra* pitchy-brown, shining, elongate-oval, slightly longer than the abdomen, nerves distinctly granulated, granulation darker than the nerves. *Legs* yellow, or dusky testaceous; *tarsi*—apex of the 3rd joint very narrowly, and *claws* black.

Abdomen black, posterior margin of the two last segments above and beneath yellow, last genital segment black; upper angles viewed from above and behind white, styloid processes somewhat U-shaped.

♀. Entirely ochreous-yellow. *Elytra* pale, transparent, reaching to a little beyond the middle of the abdomen, posterior margin somewhat broadly rounded, nerves distinctly punctured. *Legs* yellow; *tarsi* as in the ♂.

Length, ♂ $\frac{7}{8}$, ♀ 1 line.

The ♂ in appearance very much resembles the undeveloped form of *L. pellucida*, but the elytra are longer than in that species; and besides the different colour of the head, and generally the pronotum and scutellum, the different form of the opening of the last genital segment when viewed from behind, as well as the styloid processes, at once serve to separate them.

I have named the species after M. Lethierry, who, with Dr. Puton, has acquired the whole of the late Dr. Fieber's valuable drawings of *Homoptera*, and from whom I have already received valuable assistance.

Both sexes were taken by the Rev. T. A. Marshall in Corsica.

LIBURNIA GUARAMANENSIS, *sp. n.*

Undeveloped form.

♂. Testaceous, with a faint clear brownish tinge. *Scutellum*—disc with a distinct puncture near the apex of the side keels.

Head longer than broad, testaceous; *crown*—keels not prominent. *Face* concolorous, keels somewhat prominent and acute. *Antennæ* pale brownish-testaceous. *Eyes* large, pale brown.

Thorax: *pronotum* testaceous, middle keel somewhat faint, disc with a short, narrow, transverse fovea on each side of the middle, almost in a line with the posterior margin of the eyes. *Scutellum* clear pale brown, keels distinct; disc a little below the apex of the side keels with a distinct puncture. *Elytra* testaceous, reaching to beyond the middle of the abdomen, posterior margin flattish convex, nerves fine, unpunctured. *Legs* yellow.

Abdomen clear pale brown or brownish-yellow; last genital segment and styloid processes concolorous; opening of the former viewed from behind somewhat resembling the section of a carafe or water bottle with a short, wide neck.

Length, $\frac{3}{4}$ line.

Unlike any species which I have hitherto seen. The head somewhat resembles *L. spinosa*, Mink, but beyond this there is nothing more in common between them.

I took a single ♂ specimen near Linares, Andalusia, by sweeping, and which I am sorry to say is sadly mutilated through having escaped notice, and remained so long in a cyanide bottle. It wants an elytron and nearly all the legs, and the somewhat defective description must be attributed to these imperfections.

LIBURNIA SCUTELLATA, *sp. n.*

Developed form.

♂. Dusky testaceous. *Scutellum* at the base with a black spot on each side of the central keel, beyond the side keels entirely black.

Head dusky testaceous, longer than broad; *crown* slightly widening from the base to the anterior margin, keels paler than the disc, acute, prominent; central keel imperceptible on the anterior margin; anterior triangular fovea small, the two basal foveæ large, deep. *Face* dusky testaceous, keels paler than the disc, central keel almost imperceptible on the frons. *Antennæ* dusky testaceous.

Thorax: *pronotum* dusky testaceous, keels paler than the disc, the latter posteriorly inclined to pale fuscous, and in the middle with a small distinct puncture on each side of the central keel; sides, exterior to the keels, piceous; behind each eye, and adjoining the very narrowly white posterior margin, are four minute whitish spots, the inner one slightly remote from the other three, which are close together. *Scutellum* pale brownish-yellow, darker in the middle on each side of the central keel, on either side of which at the base is a black spot; disc, to within a short distance of the apex, convex, beyond the side keels black, side margins brownish-yellow. *Elytra* clear, transparent; nerves dusky testaceous, inclined to fuscous towards the apex, not granulated; marginal nerve from the apex of the clavus round to in a line with the same on the anterior margin, black. *Legs* fuscous; *thighs* dark fuscous, paler at the apex; *tibiæ*—3rd pair dusky testaceous, outer margin and apex paler; *tarsi*—3rd pair fuscous grey, apex of the 3rd joint and *claws* black.

Abdomen above, black; beneath black, posterior margin of the two last segments very narrowly yellow; last genital segment and styloid processes black, the latter somewhat bill-hook shaped at the apex. Length, $1\frac{1}{4}$ line.

In the shape of the head, somewhat like the developed form of *L. leptosoma*; apparently belonging to the same section as, but much more slender than, that species. The large Δ -shaped character formed by the posterior margin of the head and the converging side keels, the markings on the pronotum, and the form of the styloid processes, separate it from all other species with which I am acquainted.

Taken by the Rev. T. A. Marshall at Darenth, but the time of capture not known.

Lee: September, 1873.

DESCRIPTIONS OF NEW SPECIES OF EXOTIC RHOPALOCERA.

BY THE REV. R. P. MURRAY, M.A.

LYCENA PHŒBE, *sp. n.*

Male purplish-blue, with a somewhat narrow brown border to the hind margins, and on the posterior wings to the costa also. Female

brown, shot with blue at the base and on the disc; hind margin with a series of indistinct brown dots, surmounted by crescents of the same colour. Under-side pale brown; fore-wing with a discoidal streak closing the cell, slightly edged with whitish; towards the hind margin a transverse row of rather elongated brown spots edged with whitish; beyond this is a row of brown crescents surmounted by whitish, and along the hind margin are small brown dots faintly surrounded by whitish. These markings are generally very indistinct. Hind-wing: a basal row of spots, a discoidal streak closing the cell, a curved and angulated row of spots, and some indistinct marginal markings. All the spots are surrounded with whitish, and very indistinct crescents of the same colour surmount the marginal markings, and give the appearance in many cases of a whitish band. Fringe dirty white, unspotted.

Expanse, 8—10 lines.

This species has long stood under this name in the collection of the British Museum, but does not appear to have been described. I have received it from South Australia and Brisbane through the kindness of Mr. H. Ramsay Cox and Mr. Miskin.

LAMPIDES CASSIOIDES, *sp. n.*

Size and general appearance of *L. Cassius*, Cram., to which this species is closely allied. It differs in the much more blotched appearance of the under surface of the wings, arising from the larger size of the brown markings; there is a third very small metallic eye at the anal angle of hind-wing, in addition to the two found in *L. Cassius*, and the blue in these eyes is much darker and less vivid than in that species. There is a small filiform tail at the extremity of the first median nervule of the hind-wing. I have received it from Brisbane.

Mount Murray, Isle of Man:

August 28th, 1873.

ONISCIGASTER WAKEFIELDI, A NEW GENUS AND SPECIES OF
EPHEMERIDÆ FROM NEW ZEALAND.

BY R. M'LACHLAN, F.L.S.

If, as appears possible, the endemic fauna of New Zealand is not rich in species, and has a natural tendency to become extinct, and be replaced

by foreign elements that there find conditions more suited to them than even their places of origin, it at least furnishes us from time to time with most remarkable forms in all classes. Not one of the less conspicuous of these is the extraordinary 'May-fly' described below, which I recently received from my friend C. M. Wakefield, Esq., of Christchurch, Canterbury Settlement, N.Z.*

ONISCIGASTER.

(♀ *Imago*). *Corpus elongatum, valde robustum. Alæ quatuor; posticæ sat latæ, ovales; omnes venulis transversalibus ubique (anticæ apicem versus minus dense) regulariter reticulatæ. Pedes antici reliquis vix longiores; tarsi omnes 5-articulati, sub-æqualiter biunguiculati, posticorum articulo 4° brevi sed valde distincto. Abdomen valde elongatum et robustum; segmentis 7°—9° utrinque conspicue corneo-alatis, acutè productis†; ultimo parvo, elongato, obtuso-conicale: ovivalvula nulla: caudæ tres elongatæ (mutilatæ, sed medianâ cæteris graciliore, et forte brevior).*

The extraordinary abdomen of this genus, if considered without regard to the rest of the body, might almost pardonably be mistaken for that of some Myriapod (without the legs) or Crustacean. In the absence of the ♂, the affinities must remain somewhat uncertain‡; but, on the whole, I think that *Ephemera* (as restricted) and *Pentagenia* may be considered as the nearest allies, both of these differing (putting the abdominal characters for the moment out of consideration) in having only 4-jointed posterior tarsi. *Siphylurus* agrees in possessing 5-jointed posterior tarsi, but differs in its rudimentary (or, it may be said, absent) middle tail. Mr. Eaton has pointed out in his Monograph of the *Ephemeridæ*, that a tendency to lateral production of the terminal segments of the abdomen is shown in several genera, but the amount of expansion hitherto known is infinitesimal as compared with that present in *Oniscigaster*. For actual affinity in this respect we must look to the aquatic stages of some forms; and if the assertion by MM. Joly, that the so-called genus of branchiopod Crustacea named *Prosopistoma* by Latreille, is, as appears most probable, in reality only the aquatic condition of an Ephemerid, we have in the "*Binocle à queue en plumet*" the nearest ally, so far as regards abdominal structure, to *Oniscigaster*.

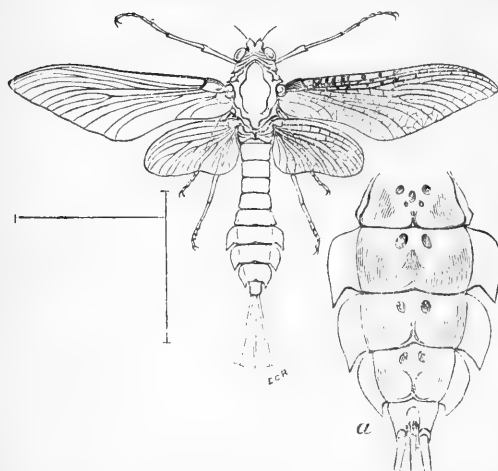
* Almost immediately before receiving the insect to the consideration of which this paper is devoted, I had published in the "Annals and Magazine of Natural History" for July, 1873 (pp. 30—42), a list of all the then known species of Neuropterous Insects from New Zealand.—R. McL.

† In one of the examples mentioned at p. 110, there is also an irregular and very acute projection on the right-hand side of the 6th segment.—R. McL.

‡ From analogy, it may be considered almost certain that the ♂ will prove to have long anterior legs, a still shorter middle tail, a less robust abdomen, with probably still greater development of the lateral processes, and the usual anal forceps. The eyes are probably simple, as in *Ephemera*, &c.—R. McL.

And this abdominal structure is repeated to a certain extent in the aquatic condition of *Bætisca obesa*, which presents many of the same characteristics as *Prosopistoma*.

ONISCIGASTER WAKEFIELDI.



a. Terminal segments of abdomen viewed from beneath.

Long. corp. (sine caudis) 10''' (= 21 mill.); *exp. alar.* 19''' (= 40 mill.).

I have examined two female imagos.

Lewisham: September, 1873.

DESCRIPTION OF A NEW SPECIES OF LUCANIDÆ.

BY CHAS. O. WATERHOUSE.

CHIASOGNATHUS PUBESCENS, *sp. nov.*

♂. *Castaneus, nitidus, æneo-micans, griseo-pubescens, convexiusculus; tibiis anticis extus bi-spinosis, intus 2 vel 3 denticulatis, intermediis rectis vix unidenticulatis, posticis rectis muticis; antennis tarsisque nigris.*

Long. (mandib. exclusis) 14 lin., *mandib.* 3 lin.

Closely resembling *C. prionoides*, but at once distinguished by the more depressed form, the more slender legs, and the colouration of the tibiæ, which are, moreover, not curved. The mandibles are as in *C. prionoides*; the anterior angles of the head are less prominent

and less acute than in that species, thus making the head less broad in front; and the tubercle over the base of each mandible is wanting. The thorax is rather less convex, and is without the two elevations at the posterior part of the disc; the sides are slightly more rounded, especially toward the anterior angles. There is a small tooth in front of the posterior angle, the angle itself being also furnished with a small tooth. The elytra are (comparatively) depressed, with the sides parallel, very little deflexed posteriorly, their whole surface thickly and finely punctured, and with but very faint indications of irregular wrinkles. The legs are longer and more slender than in *C. prionoides*. The anterior tibiæ are slightly dilated towards the apex, with two large teeth on the outer side at the apex, above these there are three or four minute teeth, the inner edge is also furnished with two or three minute sharp teeth. The middle and posterior tibiæ are straight and slender, distinctly æneous. The tarsi are slender. Nearly the whole of the upper and under sides of the insect and the legs are covered with long ashy pubescence.

Hab. : Venezuela.

Coll. Parry, from Count Mnischeh.

British Museum : August 23rd, 1873.

Is Cerambyx heros entitled to a place in the British list?—The above will probably be answered in the negative by almost every English Coleopterist. I will put another question—are *Monohammus sartor* and *sutor* both entitled to a similar position? Many will say, only the latter; whilst others will reply, certainly both of them. Among the latter will be found some of those who pin their faith on the decision of Dr. Sharp, whilst those of the former opinion will support the views of Mr. G. R. Crotch; both will be admitted as British insects by those who have been fortunate in capturing both species, and also by those into whose possession they have come upon *undoubted authority*.

I will now put my question in a different form—was *Cerambyx heros* ever a British beetle? Unfortunately, we possess no list of the *Cerambycidae* of the fourteenth or fifteenth centuries, and are quite unable to decide the number of species belonging to that family found in England in those days, when half the country was forest land, and the *Longicornia* doubtless abounded, both in species and individuals. On reference to De Marseul's Catalogue, which shows the known distribution of European *Coleoptera*, I find that *Cerambyx heros* is a native of France, Germany, Austria, Italy, Sweden, and *Britain*; the authority for the latter locality being no doubt the late Mr. James F. Stephens, who undoubtedly considered it an indigenous insect, since he gives it as one of those of which he says, "I only possess a foreign example;" as localities, he gives Devonshire and Colney Hatch Wood. The late Mr. Abel Inghen possessed a specimen, which he assured me was captured at Colney

Hatch ; at which locality Mr. E. W. Janson dug a dead specimen out of an old hornbeam, some years ago. Here, then, is evidence of the species breeding in this country ; and it may be asked, was not the parent insect of the dead specimen, in all probability, a "Britisher?"

Colney Hatch Wood was cut down some twenty-five years ago, but Walker's Wood and Southgate Wood still exist, and they are both close to Colney Hatch. About two miles from these localities, in the grove at Kentish Town, a fine specimen of *Cerambyx heros* was taken a week ago by Mr. Arthur Cates, who gave it to my eldest son ; it was kept alive for some days, and is now in my collection. Since this capture, another specimen was seen by a friend in Camden Town, it had been trodden upon and killed ; a third was taken at Wood Green, but I have not ascertained what has become of it.

Some one more learned in the geographical range of *Cerambyx heros* than I profess to be, will perhaps decide whether that insect is, or ever was, a native of Britain. That it has been bred from foreign timber, over and over again, proves nothing against the possibility of its having once been a common species in this country. At the period to which I have alluded above, I apprehend that neither *Callidium violaceum* nor *Monohammus sartor* was to be found in England, and such was the case with a host of pine-feeding insects ; but it appears to me quite reasonable to suppose that several forest insects that existed in olden times have, with the destruction of the forest, either quite died out, or nearly so ; and, belonging to the later category, is it not quite possible that *Cerambyx heros* is one of the "Last of the Mohicans?"—FREDERICK SMITH, 27, Richmond Crescent, Islington: *July*, 1873.

Stray captures of Coleoptera.—An unusually late spring, followed by a hot and dry summer, implies generally an unfavourable season for *Coleoptera* ; and the last three or four months, consequently, have afforded but little worth recording, so far as my own researches have been concerned, in that Order. Nevertheless, a few species have occurred to me (for the most part sparingly) which it may perhaps be well to note. Thus I again fell in with *Hydroporus minutissimus* and *Homalota longula* (both of them abundantly) at Slapton, where also *Anthicus angustatus*, *Philonthus punctus*, and *Pæderus fuscipes* just put in an appearance ; and other Devonshire localities have afforded me *Olibrus millefolii*, *Antherophagus pallens*, *Gymnetron rostellum*, *Cænopsis fissirostris*, *Abdera bifasciata*, *Orchesia undulata*, *Mordellistena pumila* and *brunnea*, *Salpingus æratus*, *Scydmaenus Sparshalli* and *elongatulus*, and *Calodera umbrosa*. At Glanvilles Wootton, during the last ten days of May, I met with, amongst other species, the following (some of which were captured likewise by my friend, Mr. C. W. Dale, who continues to explore that productive and well-worked locality) : *Catops colonoides*, *Læmophlæus duplicatus*, *Epistenus globosus*, *Thoscus carinifrons*, *Tropidophorus carinatus*, *Eirrhinus tremulæ*, *Thyamis nasturtii*, *Apteropeda splendida*, *Orchesia minor*, *Mordellistena abdominalis*, *Homalota elegantula*, *sylvicola*, and *autumnalis*, *Othius myrmecophilus*, and *Stiliclus fragilis*. At Lyndhurst, in the New Forest, *Anisotoma nigrita*, *Amphicyllis globus*, *Trox sabulosus*, *Elater elongatulus*, *Tillus elongatus*, *Cleonus nebulosus*, *Rhinoncus denticollis*, *Leptura nigra* and *6-guttata*, and *Trichonyx Mærkeli* ; and in the Isle of Wight, *Liodes orbicularis*, and *Ancyrophorus aureus*.—T. V. WOLLASTON, Teignmouth: *August*, 1873.

Three species of Tenthredinidæ new to Britain.—Now that a disposition is shewn to take up the study of our saw-flies in earnest, the number of additions to our recorded species will, for a time, no doubt seem inexhaustible. I have long determined several species that have not been brought forward; and now announce three of them, all taken some years since by Dr. Sharp in Scotland.

Blennocampa pusilla, (Klug) Hartig, Blattw., p. 267; Thomson, Hym. Scand., pt. i, p. 220.—One of the smallest saw-flies, distinguished (*inter alia*) from the allied species by the tips of the femora and the whole of the tibiæ and tarsi being pale yellow. Taken by Dr. Sharp at Dalry in Ayrshire. Said by Hartig to frequent alders.

Hoplocampa rutilicornis, Klug, Blattwespen, ii, p. 102; Hartig, Blattw., p. 278; Thomson, l. c.—Possibly the very smallest of all the European saw-flies. Well described by the authors cited. Also taken by Dr. Sharp, and probably at Dalry. Frequents sloe, according to Hartig.

Taronus coxalis (Klug, MS.), Hartig, Blattw., p. 293.—One of the red-bordered species, the band occupying segments 4 and 5 of the abdomen.

Possibly I might add *T. sticticus*, Klug, which has segments 6 to 8 red: a specimen from Dorking agrees entirely with the description, excepting that the pterostigma is entirely fuscous, whereas in *sticticus* one half should be white. Some of the red-bordered species may perhaps be mere varieties, depending only upon individual extensions of the band.

My foot-note to Mr. Cameron's communication respecting *Pacilosoma pulverata* at p. 69 (August) should be cancelled. It was based upon mental confusion of two very different insects.—R. McLACHLAN, Lewisham: September, 1873.

Notes on the larva, &c., of Charaxes Jasius.—I was fortunate enough in the course of last winter and spring, spent at Mentone on the shores of the Mediterranean, to find the larva of this species in some abundance, and trust that the following notes on its habits may prove of interest.

The larvæ were found on either slope of one of the numerous valleys which intersect the lower parts of the splendid amphitheatre of hills surrounding Mentone. These slopes are covered with a scrub consisting, for the most part, of Myrtle, *Arbutus*, and *Lentiscus*. Having by chance discovered a small individual on an *Arbutus* shrub, I was induced to search further, when I found the larvæ to be by no means uncommon. They were easily discovered, in spite of their colour approximating closely to that of their food plant, as they remained always on the upper surface of the leaf on the silken carpet to be after mentioned, which also greatly assists their detection. The *Arbutus* shrubs were generally of small growth, although in some places they attained to nine or ten feet; the stunted plants I found, however, to be the most productive, especially when isolated. On only three occasions did I find more than one larva on a bush, viz.—on two of these occasions two, and on the other no less than five. The larvæ had hibernated, being all found during the month of January, and were about half grown, with the exception of three which did not exceed half an inch in length.

A very good description of the caterpillar will be found in MM. Duponchel and

Guenée's 'Iconographie des Chenilles;' the only remark I have to make on this head being, that in my specimens there was an evident difference in the shades of green exhibited by the larvæ when seen together, some being darker and of a bluish-green, while others were more of a yellowish-green. This difference in colour did not arise, as I at first thought it might, from the amount of shade enjoyed by the shrubs, as the darkest larva was found on a small plant of a foot and a-half in height exposed to the full rays of the sun. The oval dorsal marks on the seventh and ninth segments were also much more strongly marked in some specimens than in others.

The larvæ of this species are very easily reared, being very sluggish and rarely moving from the leaf on which they may be resting at the time until it, or those within reach, are consumed. When they do move, it is only for a short distance, and they invariably retreat again to their original leaf on which their web is spun. This web consists of fine threads of silk closely plastered over the upper surface of the leaf, so as to give it a white, shining appearance. It seems absolutely necessary to the larva to enable it to cling to the leaf, and one of its first proceedings on going to a new leaf is to spin this coating of silk over the surface. Thus one small larva, from some defect in its spinning apparatus, was unable to weave the usual carpet for itself, although it kept incessantly going through the usual motions for doing so, moving its head from side to side. It was constantly falling off the twig on which it was placed, and had to be replaced several times a day, till at length it fell off and was lost.

They feed principally during the night, remaining inactive during the day, except when it is bright and fine, when, strange to say, they begin to eat as vigorously as on the approach of evening. They are not voracious feeders, however, and eat by fits and starts, never consuming much at a time. They have also a curious habit, when exposed to a strong sun, of extending and retracting the segments of their bodies, as if they appeared to enjoy the heat. When once they begin to eat a leaf, they seldom commence another till they have completely finished it, gnawing the midrib down to the very stem. Although found in dry localities, and in a region subject to little or no rain, they seem to be fond of moisture. I was in the habit of sprinkling their food with water, and I have often noticed them drinking up the drops. In a state of repose, the larva attaches itself to the leaf by its four pairs of claspers only, the anal pair and feet proper being elevated, and the horns lying along the back.

Several days before moulting, the new head appears in the form of a square dark green patch immediately behind the existing horns. This patch is bounded on each side by a rose-coloured border, ultimately proving to be the new horns; these last are at first very lax and drooping, but soon gain their normal position. There is a marked difference in the size of the head after the last moult, it being then nearly twice its former size; the horns, also, instead of being perfectly straight, are curved slightly downwards towards the back.

When about to pupate, the larva becomes of a clear transparent green, and rather shrunk in size, and, if placed in the sun, becomes very restless, generally ending by falling off the food plant. It then spins a small ball of silk on the under side of a leaf, either on the midrib or on the edge, to which it attaches itself by the tail

and hangs there with its head directed upwards towards the under part of the body for three days (sometimes a few hours more, sometimes a few hours less), when it changes to a smooth, stout, whitish-green chrysalis.

It remains from twenty-five to twenty-seven days in pupa. The day previous to emergence, the wing-cases appear suffused with a rich purple, the double border of gamboge spots at the outer margin of the fore-wings being very distinct. If the day be warm, the perfect insect generally emerges during the early part of the next day; if, however, the weather be dull or cold, it often does not emerge till late in the afternoon or in the evening.

The larvæ were kept on *Arbutus* sprigs, placed in small bottles of water, at a south window exposed to the full heat of a southern sun, which, during March and April, often reached as high as 106° , and sometimes even 109° . Even in January, the month when the larvæ were found, the thermometer has been as high as 97° and 100° , the average maximum temperature for the month being about 77° in the sun; at night, however, the thermometer would sometimes descend to the minimum temperature of 35° , the average minimum night temperature for that month being 41° .

The first larva suspended itself, preparatory to pupation, on the 1st of March, and changed into a chrysalis during the night of the 4th. The others continued to change at intervals during the course of the month, the last pupation, with one exception, taking place on the 31st March. The exception referred to was an extremely small larva, not half the size of its fellows. It did not change till the 13th April, and the pupa was proportionately small, and of quite a different colour from the others, being of a much clearer and almost translucent green. Not having emerged by the time I left Mentone, I placed it in a small box which I took with me, but unfortunately forgot to look at it till a good many weeks had elapsed, when I found it had emerged and was spoilt.

Of thirteen pupæ which I retained, the first emerged on the 1st of April, and the last on the 20th of that month, the shortest period in the pupa state being a little over twenty-four days, and the longest about twenty-eight days. Of six pupæ which I sent to my friend Mr. Chapman, of Glasgow, two died in the pupal state; of the others, one emerged on the 21st of April, having been thirty-six days in pupa, another on the 24th, or thirty-seven days, and the remaining two on the 27th of the same month, or thirty-eight days, his having thus taken about ten days longer to emerge than mine did. The weather in Glasgow at this time it should be mentioned was very cold and unfavourable.

The perfect insect is the finest of all the European butterflies, and is the only *Charaxes* found in Europe, the great stronghold of the genus being in West Africa. It varies but little, the most noticeable point of difference being the degree of distinctness in the inner of the two marginal rows of spots on the fore-wings. In some of the specimens bred, this is nearly obsolete, with the exception of the spot nearest the costal margin; in others, again, it reaches to the centre of the wing only, while in others it stretches right across the wing, extending even a little way on the hind-wings. In all the specimens, the basal half of the costal margin of the fore-wings is of a rust red; in one individual, however, this colour extends over the whole basal area of the wing, and the white spot on the costal margin of the hind-wings, which is always more or less present (although in some cases it is almost obsolete), is, in this

example, extremely distinct. There are also traces of a white margin to each of the yellow spots along the outer margin of the hind-wings, which is unusual. Of those which I bred, the smallest was 3 inches, and the largest $3\frac{1}{4}$ inches in expanse. JAMES H. PEARSON, Glasgow: July, 1873.

Note on the larva of Zygæna meliloti.—In the month of July last year, Mr. W. A. Lewis gave me about sixty eggs of this species together with the parent moths, which he had taken *in copulâ* in the New Forest, both of which were typical specimens. The eggs were nearly twice the size of those of the early or 'dry' form of *Z. trifolii*, a young brood of which I was then rearing. Under the microscope, they appeared of a pale yellowish, tinged with green, smooth and perfectly oval, apparently varnished, and laid in patches with the major axis of each egg parallel to that of the others. There were some black, and a few red and blue, scales from the parent adhering to the surface of these eggs, which were mottled in places with creamy-white, the whole appearance strongly reminding one of the egg of some birds, especially that of the yellow-hammer.

The most remarkable point in the egg state of this species is the large size of the egg compared with that of *Z. trifolii* (early form), although the latter is the larger moth.

These eggs hatched on the 18th July, and I fed them on birdsfoot trefoil; the young larvæ grew much more slowly than those of the early form *trifolii* that I was rearing at the same time. The greater portion of the larvæ of both these species died before the winter, but about eighteen young *meliloti* safely hibernated. They hibernated when about three lines in length, while *trifolii* from the smaller egg were of an average of five or six lines in length. Up to hibernation, there was no very perceptible difference in the markings of the larvæ of the two species, both being of a semi-transparent brownish-white colour, with the usual rows of black spots; but whilst in *trifolii*, although still small, the future rows of spots and lateral lines were distinct, in *meliloti* the same were nearly (and in some specimens quite) obsolete, giving the larva somewhat the appearance of a maggot.

In the April of this year, however, when both species moulted and began to feed, a striking difference shewed itself, for while *trifolii* assumed the lateral lines with orange spots, and the two dorsal and two lateral rows of large black spots that (except in size, shape, and intensity) it possesses in common with the larvæ of the late forms of *trifolii*, *filipendulæ*, and *loniceræ*, the spots and lateral lines in this species were so nearly obsolete that to a casual observer they would appear quite so, the large spots being represented by occasional dusky punctations. The cold spring of this year proved fatal one by one to all my *trifolii*, and by July 15th, I had but three larvæ of *meliloti* left, from one of which the appended description was taken. They had grown very slowly, and were only about half an inch in length by that date, but had passed through four moults since the winter, viz., on or about the 5th April, 27th May, 8th June, and 9th July. They cast their skins in the curious manner observed by Mr. Hellins in respect to *Z. trifolii* (Ent. Mo. Mag., iii, 18).

One of these three larvæ I have sent to Mr. Buckler; of the other two, one (from which my description was taken) again moulted on July 24th, the other has

not done so. Neither has grown any more, and both have ceased feeding, and seem intending to hibernate for a second winter! Can this be the habit of the species?

On the 9th July of this present year, I went with Mr. Lewis to the New Forest, but, the day being cloudy, only got four moths from which I could get no eggs, but Mr. Lewis was more fortunate, and obtained about forty eggs, the larvæ from which are now safely through their first moult, so I shall hope to investigate their habits further; these eggs were precisely the same as those of last year, and on comparison were very much larger than the eggs of *Z. filipendulæ*, an insect nearly twice its size. The young larvæ shew the same markings, or rather want of markings, as before.

The young larva of *Zygæna meliloti* may be thus described:—Body pale greenish-grey, with a few short white hairs scattered over it, and irrorated with minute dusky tubercles. Head black, with transverse upper lip. Membrane at base of antennæ and articulations of the mouth white. The arrangement of the ground colour is into five lines, as in the two forms of *trifolii*, *loniceræ*, and *filipendulæ* that I have met with. but these lines are almost obsolete, though faintly distinguishable, with an indistinct pale narrow dorsal streak down the centre of the dorsal line. Dorsal line broad; on each side of it, instead of the two large black spots on each segment more or less distinct or confluent as in the other species I have mentioned, the anterior spot only is present, in the form of a minute black spot on the anterior portion of each segment, below which on each side is a broad line of the ground colour, with an inconspicuous chrome-yellow spot in the fold formed by the hind margin of each segment. The lower row of black spots, two on each segment below this, which the other species I have mentioned possess, is entirely obsolete, being replaced by the ground colour; spiracles black, encircled with first a white, then a black narrow ring. No dusky marks above the feet and under-side, except a narrow black line round the base of each fore-leg and apex of each pro-leg.

OBS.—Except in the obsoleteness of the black spots and lines, which at first sight gives the larva a totally different appearance from the other species I have mentioned, the position and distribution of the markings, even to such minute particulars as the markings of the articulations of the mouth, colour of the spiracles, and the yellow spot in the fold of each segment, are the same in all these species.—T. H. BRIGGS, Lincoln's Inn: *August 15th*, 1873.

Lithosia griseola and *stramineola*.—Although fully believing that *stramineola* and *griseola* are "only varieties of one species," I am not prepared to consider that the fact communicated by the Rev. J. Hellins in your August number *proves* this to be the case. For this reason: I have repeatedly seen *stramineola* in cop. with *griseola*; sometimes a ♂ *griseola* with a ♀ *stramineola*, sometimes the reverse. From this, it will be readily understood that eggs laid by *stramineola* may produce *griseola* and intermediate varieties. These intermediate varieties are common where *stramineola* and *griseola* are found in any numbers. The most conclusive proof, in my opinion, that *stramineola* and *griseola* belong to one species, would be to obtain *griseola* from ova, the produce of a ♂ and ♀ *stramineola*, or *vice versa*. Next year, doubtless I shall again find pairs of *stramineola* and pairs of *griseola*; if so, perhaps

the Rev. J. Hellins will permit me to forward them to him with the view of further investigation. By-the-bye, which is the variety and which the species? I have seen *stramineola* flying with, and as common as, *griseola*.—A. B. FAEN, 3, Parliament Street, S.W.: *August 16th*, 1873.

[We believe that the yellow 'variety' or 'form' has only been observed in Britain, whereas the dark form is probably found all over Europe. Hence the former may be considered a local condition of a widely distributed species.—EDS.]

Leucania albipuncta at Folkestone.—On the 30th ult., I captured a fine example of *Leucania albipuncta* (♀) at sugar, near Folkestone.—A. H. JONES, Shrublands, Eltham: *9th September*, 1873.

Eupithecia expallidata and *succenturiata* bred.—I have bred a fine series of *E. expallidata* from Golden Rod, and *E. succenturiata* from quite a fresh food-plant—wild chamomile. I got the larva near Fleetwood, and kept it separate, thinking that I had a new pug, and this was the result. I have captured over a dozen specimens as well at the same spot, and there is no ragwort where I have got them.—J. B. HODGKINSON, 15, Spring Bank, Preston: *July 16th*, 1873.

Batrachedra præangusta.—On the 19th June, 1867, I had the pleasure of forwarding cocoons and full-fed larvæ of this species to Mr. Stainton, from which he bred specimens of the perfect insect; and, at page 152 of the 'Entomologist's Annual' for 1868, is a description of the full-fed larva from his pen.

Mr. Boyd (late of Clapton Square) was, I believe, the first person who discovered the cocoons in this country: he forwarded some to Mr. Stainton in 1854.

At the proper time, say about the 20th of June, the cocoons are readily seen in the chinks of the poplar bark; I have counted more than 100 on a mere slip of a tree.

Our knowledge as to the economy of the feeding larva apparently remains about the same as it was in June, 1868.—CHAS. HEALY, 74, Napier Street, Hoxton, N.: *5th September*, 1873.

[We hear from Mr. John Sang, of Darlington, that he once bred this species from a larva feeding between sallow leaves.—EDS.]

Captures near Glanville's Wootton.—The following are the best of my captures here during the past season:—

LEPIDOPTERA.—*Cucullia verbasci*, *Eupithecia irriguata*, *Eurymene dolabraria*, *Anchylopera diminutana*, *Eupæcilia maculosana*, and *Lampronia rubiella*, in May; *Lobophora sexalata*, *Emmelesia decolorata*, and *Anchylopera ramana*, in June; *Macaria alternata*, *Ennomos illustraria*, *Phorodesma bajularia*, *Boarmia repandaria* (banded variety), *Teichobia Verhuelella*, and *Gelechia subocellea*, in July; *Aventia flexula*, and *Ochsenheimeria Birdella*, in August.

COLEOPTERA.—*Badister humeralis*, *Stiliclus fragilis*, *Saprinus rotundatus*, *Phytæcia cylindrica*, *Mordellistena abdominalis* and *pusilla*.

NEUROPTERA.—*Micromus aphidivorus*, *Hemerobius pellucidus*, and *Cæcilus Dalii*.

HYMENOPTERA.—*Fænus assectator*, *Cræsus septentrionalis*, *Emphytus calceatus*, *Cinetis dorsiger*, *Tiphia minuta*, and *Alyson lunicornis*.

DIPTERA.—*Oxycera longicornis* and *analis*, *Callomyia amœna*, *Platypeza atra*, *Pachygaster Leachi*, *Sphegina clunipes*, *Palloptera litura*, *Borborus pedestris*, *Cecidomya pini*, and *Limnobia sexguttata*.

HEMIPTERA.—*Ploiaria vagabunda*, *Phytocoris intrusus*, *Eupelix producta*, and *Aphis (Adelges) piceæ*.—C. W. DALE, Glanville's Wootton, Sherborne: September 2nd, 1873.

Answer to the "Notes on a British bug."—As it was I who wrote the description of *Oncotylus tanacetii* and *Macrocoleus sordidus*, the former in Brit. Hem., the latter in the Ent. Mo. Mag., I wish to shew my reasons for supposing that we possess those insects, and also to ask whether Mr. Saunders' belief, that the species said to be taken by him on *Ononis* appears to be known under two distinct names, is a proof that I am the cause of that error, when no evidence is adduced that I have either sent or named the insects in those collections? To be certain of what I was about, and before writing the descriptions of either of the above insects, I submitted specimens to the late Dr. Fieber for his opinion, and they were returned to me with the above names, and now stand in my collection with his labels attached. The *Macrocoleus sordidus* he had it in his power to compare with an original example which he had from Kirschbaum, to which he refers in the Europ. Hemip., p. 320, where, in a foot-note, he corrects the author as to the spotting on the thighs. My description was drawn up from the individual submitted to Fieber, and it and others were not taken by me on *Ononis arvensis*, but by beating and sweeping *Origanum vulgare*. Fieber says that *Macrocoleus sordidus* occurs on the margins of woods on low plants, and Kirschbaum upon low plants by the sides of woods and on flowers in woods; thus bearing me out as to locality. *Oncotylus tanacetii*, as described by me, and the insect taken by Mr. Saunders, are certainly identical, and both agree in every way with the specimen returned to me as *Oncotylus tanacetii* by Dr. Fieber (which is perfectly distinct from the insect described by me as *Macrocoleus sordidus*): I have never met with it on *Ononis*, a plant I have but seldom had an opportunity of examining. This therefore proves that the insect is not confined to the *Ononis*, but apparently lodges in any house where it is best entertained; and this holds good with its being found on *Tanacetum vulgare* on the margins of woods. Can there be any on the "hedge-bank between Leatherhead and Mickleham," where I took it? I am content to be of the same opinion in the matter as Dr. Fieber, and until he is proved to be wrong, I must maintain that the names and descriptions of my insects are rightly applied. I have the insects before me lent by Mr. Douglas to Mr. Saunders. The label "*Macrocoleus sordidus*" of one of these, with a number underneath the card, is in my handwriting; "*Oncotylus tanacetii*," the label of the other, without a number, is neither in the handwriting of Mr. Douglas nor myself. Scholtz's exponent of the last named (ticket yellow, with funereal border) has a longitudinal row of punctures on the second pair of thighs (under-side) not applicable to the descriptions of authors. The other specimen of Scholtz, labelled "*C. hortulanus*, Meier," is without elytra, and totally irre recognizable. In passing, I will simply observe that the only exponent I have of *Tiniciphalus hortulanus* was given to me

by Mr. Saunders as that insect, and is exceedingly like *Plagiognathus viridulus*, but not in the least like *M. sordidus*. No doubt very great revision is required in the *Capsidæ*; but, although the differences in characters as regards *Oncotylus*, *Macrocoleus*, and *Tiniciphalus* may appear to be small, they are perfectly recognizable by an experienced eye.

In conclusion, I trust I may be excused for remarking, that, if Mr. Saunders had so strong a belief in his insect being a distinct and undescribed species, that he deemed it expedient to make the belief public, his reason for declining to name it, viz.,—"in case further investigation should prove that I have been too hasty in my "conclusion," seems scarcely reconcilable with the strength of his conviction. He appears to start with a certainty, and end in the clouds.—JOHN SCOTT, 37, Manor Park, Lee, S.E. : 10th September, 1873.

Review.

MONOGRAPH OF THE COLLEMBOLA AND THYSANURA; by SIR JOHN LUBBOCK, Bart., M.P. Ray Society, 1873. 8vo.

We have at length the pleasure of announcing the appearance of this long-looked-for volume, one of the many magnificent contributions to the literature of Natural History issued by the Ray Society. Space will not permit a long notice; and, as the curious animals upon which the work treats have not received our special attention, we could hardly do it justice. All entomologists are aware of the controversy long urged as to the position of these groups; how of late it has been attempted, on what grounds we never could see, to graft them on to the *Neuroptera*. It may interest entomologists to know that Sir John Lubbock is of opinion that while they "are more nearly allied to the *Insecta* than to the *Crustacea* or *Arachnida*, we "cannot, I think, regard them as *Orthoptera* or *Neuroptera*, or even, in the strictest "sense, as true insects." In fact, he makes two distinct orders out of the old group *Thysanura*—' *Collembola* ' and ' *Thysanura* ,'—which for all practical purposes may be considered as equalling *Poduridæ* and *Lepismidæ* respectively, though these two forms actually only represent families in each order. The author's views respecting certain members of the second order in connection with the 'ancestry' of insects are well known.

The work is magnificently illustrated, there being no less than 78 plates, 54 of which (31 being coloured) represent nearly as many species in highly magnified figures, 12 are devoted to anatomical details, and the remainder to enormously enlarged scales showing their peculiar structure, and accompanied by an essay by Mr. Joseph Beck. The whole of the illustrations were executed by a pains-taking deaf and dumb artist, Mr. Hollick.

This work will mark an era in the study of those neglected, but intensely curious, animals, and we doubt not repay both author, artist, and the Society for the labour bestowed upon it. It is really the volume issued to the Subscribers for 1871; but we think there are now signs that the vexatious delays (to which we will not further allude) that caused the publications to fall into arrear, have been effectually overcome.

NOTE ON THE LEPIDOPTEROUS FAUNA OF ST. VINCENTE, WITH DESCRIPTION OF A NEW SPECIES OF *GELECHIA*.

BY PROFESSOR WEYENBERGH, PH. D.

St. Vincente is not only one of the smallest but also one of the poorest, most arid, barren, and naked of the Cape Verd Islands.

During a walk of several hours on this Island in July last, I captured various insects, and especially fixed my attention on the *Lepidoptera*, though the scanty and stunted vegetation gave me a poor expectation as to its fauna. Stones and rocks, with a few sickly *Mimosa* bushes, low thistle-like plants and grasses, were all that my eyes could discover. Already, in another place (in the account of my travels in the Dutch newspaper, '*Nieuws van den dag*,' 1873), I have demonstrated that this flora in former years was more beautiful, and that of late an impoverishment has been observed, which is to be perceived also by comparing the account of the travels of Professor Burmeister in 1857 with that of my own above mentioned.

The proprietor of the "Hotel Français" (a Frenchman) and his very affable wife assured me, as soon as they saw my nets for catching moths, that several naturalists in vain had searched there for butterflies in the last ten years, and that butterflies were no longer to be found on the island, though in former years some had been there. I knew that already, since Prof. Burmeister had seen here a *Papilio*, and had found some caterpillars, not very unlike those of the European *Deilephila galii*, L. (Burmeister: *Reise durch die La Plata-staaten*, th. i, p. 17).

The host told me that he believed the first cause of this going-back of the Lepidopterous fauna was the going-back of the vegetation, and that this could be accounted for by the very few rains of recent years: a supposition to which I readily assented.

In the meantime, I believed that this opinion of these inhabitants would not be wholly correct, because the smaller species of moths and all species that are not great diurnal butterflies generally escape observation, and therefore I was for continuing my search, which was recompensed by the following discoveries:—

One green caterpillar of the genus *Cidaria*, and a brown one of the same genus, both 1 centim. long. Alas! both have died, like the *Deilephila* caterpillars of Prof. Burmeister.

One *Acidalia* with brown fore-wings and pale hind-wings, and an expanse of $2\frac{1}{2}$ centim. This moth, however, has been lost.

On a small, odoriferous *Mimosa* I found, in flowers spun together with silk, some grey* caterpillars with a black head and pale stigmatal points. These caterpillars on the following day had made a beautiful white and oblong cocoon, and the following week had changed to light brown pupæ. After about three weeks the moths appeared, which I distinguished directly as a species of the genus *Gelechia*, near *G. terrella*, S. V. I believe that this species is not yet described, and therefore I have given it the name *Gelechia Benedenii*, a homage to my fellow-traveller and friend, Professor E. van Beneden, of Liège.

Gelechia Benedenii, Weyenb.—Expanse of the wings 1 centim. Antennæ and eyes dark brown, fore-wings dark grey, with very little black points; by flowing together, several of these points form an oblong, black spot about the tip of the wing, the hinder margin of the wing is also a little black. The sharp, lancet-form hind-wing is pale grey. The fringe of the wings is also grey, in the fore-wings darker than in the hind-wings; legs grey; abdomen dark, with a grey down.

Moreover, I saw at St. Vincente a *Tinea* that will be, I believe, *T. spretella*, S. V., or *T. pellionella*, L.; and a *Pterophorus* with dark brown wings and an expanse of 2 centim., but it was too much damaged for a correct determination.

These are all the Lepidopterous insects that I found on St. Vincente.

Cordova: June, 1873.

DESCRIPTION OF NINE NEW SPECIES OF *LYCÆNIDÆ* FROM THE WEST COAST OF AFRICA.

BY W. C. HEWITSON, F. L. S.

The butterflies now described are, as will be seen, chiefly from the collections of Mr. Rogers, who has been so fortunate as to return home after repeated attacks of fever, leaving behind him in the grave a large portion of the European population. He saw *P. Antimachus* and another large butterfly, which, from his description, must be a magnificent species. His last collection is from the Gaboon, and contains a dozen species that are new, chiefly *Lycænidae*.

IOLAUS CARINA, *sp. n.*

Upper-side: ♂. Cærulean blue. Anterior wing with the apex

* Or green: the writing is not quite distinct.—H. T. S.

broadly dark brown; the inner margin, where it meets the posterior wing, with a tuft of black hair. Posterior wing with three tails; white, marked with brown under the hair of the anterior wing; the outer margin black, very narrow, the anal angle white; the lobe marked by a minute rufous and black spot.

Under-side: white. Anterior wing crossed at and beyond the middle by very pale rufous, linear bands. Posterior wing crossed at the middle by a similar band; a black spot on the lobe and also between the tails, crowned with orange, which is bordered above with silver-blue.

Female like the male, except that it is white above, and has two brown spots at the base of the tails.

Exp. $1\frac{3}{16}$ inch.

Hab.: West Africa.

IOLAUS BOLISSUS, *sp. n.*

Upper-side: ♂. Ultramarine blue. Anterior wing with the apical half nearly black, a tuft of long black hair where the wings meet. Posterior wing with three tails, the apex and outer margin (which is narrow) black; a small black spot between the tails; the lobe black, crowned with scarlet, and irrorated with silver-blue.

Under-side: white. Both wings crossed by a rufous band beyond the middle. Anterior wing with a rufous line at the end of the cell, and a sub-marginal band of pale brown spots. Posterior wing with two sub-marginal bands, the inner band rufous, the other brown; a black spot between the tails, and the lobe black, bordered above with scarlet, irrorated with lilac-blue.

Exp. $1\frac{4}{16}$ inch.

Hab.: West Africa (Congo; Rogers).

Very near to *I. Helius*, from which it differs chiefly in its dull, instead of metallic, blue, and in having the black of the anterior wing of a different form, and covering much less space.

IOLAUS CANISSUS, *sp. n.*

Upper-side: pale blue and white, the costal and outer margins and a band which crosses the cell dark brown. Posterior wing with two tails, crossed at the middle by a rufous-brown band; a sub-marginal band of spots and the lobe black.

Under-side: white. Both wings with the outer margin rufous, and a sub-marginal series of black spots. Anterior wing with the base and three broad transverse bands of rufous-orange, bordered with black, from the costal margin to the first branch of the median nervure.

Posterior wing crossed by three similar bands; the first, which is parallel to the inner margin, meets the third, which is in the middle, at the anal angle; the second is short.

Exp. $1\frac{5}{10}$ inch.

Hab.: South Africa.

Nearest to *I. Bowkeri*.

HYPOLYCÆNA ARUMA, *sp. n.*

Upper-side: ♂. Anterior wing purple, with a scarlet spot on the inner margin a little below the base. Posterior wing scarlet, with one tail; the costal margin purple, the outer margin black, narrow.

Under-side: white, with the outer margins pale brown. Both wings crossed by a straight rufous band. Posterior wing with a large orange spot, marked with black, at the base of the tails; the lobe and a spot near it black, crowned with pale blue.

Exp. $1\frac{2}{10}$ inch.

Hab.: West Africa (Gaboon; Rogers).

On the under-side, this, the most beautiful species of the genus, resembles *H. Eleala*.

HYPOLYCÆNA MERA, *sp. n.*

Upper-side: ♂. Ultramarine blue. Anterior wing with the base, the costal and outer margins (which are broad), and a band at the end of the cell, dark brown. Posterior wing with one tail; the nervures and the outer margin, which is very narrow, black; the lobe black, decorated with scarlet and blue.

Under-side: white. Both wings crossed by a broad rufous band. Anterior wing with two sub-marginal bands of pale brown spots. Posterior wing with a large orange-yellow spot at the base of the tails, marked by a large black spot and a small spot of the same colour irrorated with silver-blue; lobe black, bordered above and below with silver-blue.

Exp. $\frac{9}{10}$ inch.

Hab.: West Africa (Angola; Rogers).

HYPOLYCÆNA NAARA, *sp. n.*

Upper-side: ♂. Dark blue. Anterior wing with the costal and outer margins dark brown; a brown discal spot as in the *Theclæ*, but placed lower down upon the median nervure. Posterior wing with two tails, broadly fringed with white: the outer margin black, dentated, with a broad white fringe; the lobe black.

Under-side: white. Both wings crossed a little beyond the middle by a narrow rufous band, slightly zig-zag on the posterior wing, and a sub-marginal linear brown band. Anterior wing with the outer

margin pale brown. . Posterior wing with a large square rufous spot marked with black between the tails; the lobe black, crowned with scarlet.

Exp. $1\frac{2}{10}$ inch. *Hab.*: West Africa (Angola; Rogers).

Very near to *H. Eleala*, but at the same time very distinct in form and colour, the band on the under-side of the posterior wing zig-zag instead of straight as in *Eleala*.

PENTILA TIRZA, *sp. n.*

Upper-side: semi-transparent, white. Anterior wing with the costal margin, the apex where it is broadest, and the outer margin to the first branch of the median nervure, pale brown.

Exp. $1\frac{4}{10}$ inch. *Hab.*: West Africa (Gaboon; Rogers).

Form of *Pentila tropicalis*.

PENTILA CARNUTA, *sp. n.*

Upper-side: anterior wing dark brown, with a scarlet spot near the base of the inner margin. Posterior wing scarlet, with the outer margin broadly brown.

Under-side: ochreous-yellow, undulated with dark brown. Both wings with the centre clouded with brown; both with a sub-marginal series of brown spots, bordered below with white. Posterior wing with some central dark brown spots.

Exp. $1\frac{1}{10}$ inch. *Hab.*: West Africa (Gaboon; Rogers).

In form long and narrow.

LIPTENA TERA, *sp. n.*

Upper-side: white. Anterior wing with the apical half nearly from the costal margin beyond its middle to the anal angle dark brown. Posterior wing with the outer margin towards the anal angle rufous-brown.

Under-side: anterior wing as above, except that it has a triangular brown spot near the middle of the costal margin, and a minute black spot below it. Posterior wing with three black spots near the base, three large spots beyond the middle, and a sub-marginal series of lunular spots, all rufous-brown.

Exp. $1\frac{4}{10}$ inch. *Hab.*: West Africa (Gaboon; Rogers).

Form of *Liptena Lircæa*.

DESCRIPTION OF A NEW JAPANESE SPECIES OF *LYCÆNA*, AND
CHANGE OF NAME OF *L. CASSIOIDES*, MURRAY.

BY THE REV. R. P. MURRAY, M.A.

LYCÆNA PRYERI, *sp. n.*

Male: upper-side bright violet-blue, costa, tip, and hind margin broadly dark brown; inner margin of hind-wing white. A dark brown streak closes the discoidal cell of fore-wing. Fringe white. Female similar to male, but only blue at base and along inner margin of fore-wing, the disc being white. The discal portion of hind-wing is also whitish, the base being dusky. A blue streak closes the cell of hind-wing in this sex; in the ♂ this streak is hardly perceptible. In both sexes the veins of the wings are very distinct; in the ♀ they are edged with bluish scales on the discal portion of the wing.

Under-side white, with two marginal rows of black spots on each wing; those of inner row of upper wing being the largest, and seven in number. The outer row is composed of about twelve spots. A fine black line occupies the extreme hind margin of both wings. Discoidal cell closed by a brown streak, most distinct on fore-wing.

Exp. ♂, 22 lin.; ♀, 24 lin.

Hab.: Japan.

This magnificent species is not closely allied to any species with which I am acquainted. The female, however, bears considerable resemblance on the upper-side to that of *L. absimilis*, Feld., but *L. Pryeri* wants the markings on the under-side of the hind-wing, which exist in the Australian species. The males, also, of the two species are widely different.

I have named the insect in honour of Mr. H. J. S. Pryer, of Yokohama, Japan, who has lately sent to England several specimens of this interesting form.

I find that *cassioides* is a name previously employed by M. Boisduval to designate a species of *Lycæna* from Central America. The Australian insect, therefore, described by me on page 108 of the present volume of this Magazine will require a new name, and I now propose to call it *L. pseudocassius*.

Mount Murray, Isle of Man:
October 8th, 1873.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the BYTHOSCOPIDÆ, and descriptions of some species not hitherto recorded as British.

(continued from page 82).

Species 2.—*BYTHOSCOPIUS FRUTICOLA*, Fall.

Cicada flavicollis, Fab., E. S., vol. iv, 37, 42; *rosæ* and *bipustulata*, *id.*, l. c., 45, nos. 77 and 79; *triangularis*, *id.*, l. c., 46, 82.

Iassus fruticola, Fall., Cicad., 62, 5; Zett., Ins. Lapp., 302, 4.

Iassus obscurus, *pallens*, *triangularis*, *flavicollis*, *rosæ*, *fuscus*, *capucinus*, and *tristis*, vars. a—g, Zett., *ibid.*; *nigritulus*, *id.*, l. c., 303, 5.

Iassus triangularis and *flavicollis*, Germ., Mag., vol. iv, 13 and 14.

Bythoscopus fruticola, Panz., D. I., 143, figs. 9 and 10; Fieb., Verhandl. d. k. k., zool.-bot. Gesell. (1868), 457, 2.

Iassus reticulatus, Curt., B. E., 636, 6 ♂, fig. and descript.; *ferrugineus*, *flavicollis*, *pulchellus*, *fenestratus*, and *personatus*, *id.* l. c. nos. 2, 3, 4, 5, and 7.

Pediopsis fruticola, Flor, Rhyn. Livl., vol. ii, 184, 2, &c.; Marshall, Ent. Mo. Mag., vol. ii, 125, 3; Kirschb., Cicad., 170, 1; Thomson, Opusc. Ent., fasc. iii, 318, 2.

Pediopsis flavicollis, J. Sahlb., Not. Fenn., part 12, 120, 3.

The above synonymy will show at a glance how very numerous the varieties of this insect are, and, singularly enough, they are nearly all those of the female sex. To describe them at length I believe is unnecessary, and I therefore only point out the principal variations.

♂. *Scutellum* with a black triangular spot at each basal angle. *Elytra* pale, almost transparent; nerves black.

Head: crown yellow, with or without a transverse black streak, terminating in a black spot at a little distance from each eye. *Face* yellow, immediately adjoining the ocelli a black spot, below the latter a more or less large comma-shaped black spot, frequently joined at the base, and forming a horseshoe-shaped patch.

Thorax: *pronotum* yellow, transversely wrinkled; disc more or less grey, and in the interstices more or less sprinkled with minute black atoms; anterior margin behind each eye with a transverse, irregular-shaped black patch, behind which is a small black spot. *Scutellum* yellow, with a black or dark brown triangular spot at each basal angle, a dark brown central line slightly widened at the transverse channel, and a spot of the same colour on either side of the central line above the channel; or black, with a yellow triangle on each side next the apex. *Elytra* pale, almost transparent; *clavus* pale greenish or yellowish-white at the base; central nerve and apical two-thirds of the inner nerve black, the colour slightly spreading on to the disc between their apices. *Corium*—nerves black; the areas on either side of the second transverse nerves narrowly piceous; membrane areas round the apex more or less broadly piceous or black. *Legs* yellow; *thighs* generally with a black longitudinal streak on the inside; *tibiae* with a black longitudinal streak at the base exteriorly, and another at the apex interiorly; *tarsi* yellow, 3rd joints and claws generally black.

Abdomen—above black, base yellow, posterior margin of the last segment entirely, and of the penultimate on the sides, yellow; beneath yellow, anterior margin of

the segments black ; last genital segment black beneath, next the external processes yellow, the latter more or less brown towards the apex, sparingly clothed with short, pale hairs ; base yellowish-white.

♀ usually without a black or brown triangular spot at the base of the *scutellum*.

Sometimes entirely green ; or brown or reddish-brown, with the head, pronotum, scutellum, and base of the clavus, broadly green or greenish-yellow ; or entirely brown, excepting the base of the clavus, which is greenish or yellowish-white ; or head, pronotum, and base of the clavus, green ; scutellum yellow, with a brown triangular spot at each basal angle. *Elytra* : nerves piceous or black. *Corium* : disc clear, semi-transparent ; base, a small space round the transverse nerves and the membranal areas piceous. *Legs* black.

Length, $1\frac{1}{2}$ — $2\frac{1}{4}$ lines.

Common on birches and alders everywhere, from June to September.

Genus *PEDIOPSIS*, Burm.

In form, exceedingly like the genus *Bythoscopus* ; but the angle of the basal margin of the crown is more acute, the anterior portion of the pronotum from the centre to the lateral margins more steep, and the disc finely crenulated. The crenulation (more or less in certain species) runs diagonally in little and somewhat convex (towards the posterior margin) streams from the centre of the anterior margin towards the posterior angles. The external processes also are longer than in *Bythoscopus*. Fieber enumerates seventeen species as European, and, although I am about to add considerably to the number of previously recorded British species, I have a conviction that there are still more to follow.

Species 1.—*PEDIOPSIS TILIÆ*, Germ.

Iassus tiliæ, Germ., F. Ins. Eur., 14, 14.

Pediopsis tiliæ, Flor, Rhyn. Livl., vol. ii, 183, 1 ; Fieb., Verhandl. d. k. k. zool.-bot. Gesell., 457, 1 (1868) ; Kirschb., Cicad., 175, 9 ; Thomson, Opusc. Ent., fasc. iii, 317, 1.

A. *Face unspotted*.

♂. *Head* and *pronotum* yellow or greenish-yellow. *Elytra* pale brownish-yellow, with numerous small brown spots, especially towards the apex.

Head yellow or greenish-yellow. *Face*, next the base, finely crenulated, in the centre somewhat coarsely punctured ; from the base to about in a line with the middle of the eyes is a faint, central, longitudinal keel.

Thorax: *pronotum* yellow or greenish-yellow, with a central, longitudinal keel, terminating in a faint depression considerably before reaching the apex; the crenulation extends on either side in a diagonal manner from the base of the central keel towards the posterior angles. *Scutellum* brown; apex, from the arcuate channel, paler. *Elytra* pale brownish-yellow; nerves brown. *Clavus* with a few minute brown spots towards the apex. *Corium*, around the second transverse nerves, thickly and minutely spotted with brown, the spots more or less confluent; the areas before the membrane paler than the other portion of the disc, with numerous scattered brown spots; immediately beyond the apex of the clavus, the margin and a small portion of the disc, white, beyond which is a dark brown patch nearly occupying the whole of the first membranal area; the remaining membranal areas yellowish-brown, with numerous minute brown spots. *Legs* pale brownish; *tibiæ*—denticulation in front black; *claws* black.

Abdomen above, black, margins of the segments narrowly pale brownish, beneath yellow; last genital segment above, pitchy-black, beneath yellow; external processes whitish, widened and flattened at the apex, and clothed with fine, white hairs. Length, 2 lines.

Allied to *P. cerea*, but the yellow or greenish-yellow head and pronotum will be found sufficient to separate the two species.

Apparently rare. Esher in June.

Species 2.—*PEDIOPSIS ULMI*, *sp. n.*

♂ testaceous-brown; ♀ fulvous or testaceous; both sexes shining.

♂. *Head* and *pronotum* pale brownish-yellow. *Scutellum* with a brown, triangular spot at the basal angles. *Elytra* deep testaceous-brown, having a somewhat smoky appearance; *clavus*—nerves stout; *tibiæ*—3rd pair black, spines pale yellowish or whitish.

Head: *face* pale brown, around the ocelli and down the side margins frequently darker; *ocelli* minute, white. *Antennæ* pale.

Thorax: *pronotum* pale brownish-yellow; length down the middle about equal to one-half the width; crenulation finest next the centre; posterior margin somewhat paler than the disc, and, in fresh examples, frequently with a faint greenish appearance. *Scutellum* more or less clear pale brown; from the base to the transverse channel finely crenulate-punctate; basal angles with a large, triangular, brown, unpunctured spot; apex somewhat yellowish. *Elytra* deep testaceous-brown, with a somewhat smoky appearance. *Clavus*—nerves stout, dark brown or fuscous, the colour extending on either side upon the disc, thereby giving them a stouter appearance than they really possess. *Corium*—anterior margin adjoining the nerve narrowly dark brown or fuscous; 1st longitudinal nerve entirely, and the two others, as far as the 2nd transverse nerve, brownish or fuscous, paler than those of the clavus, the colour extending on to the disc as in the latter; from the 2nd transverse nerve to the apex the

nerves are fine, slightly darker than the disc. *Legs* pale brownish; *thighs* pale brownish, all the pairs next the apex darker, sometimes almost black; *tibiæ* more or less pale brownish, all the pairs with a small black spot exteriorly at the base; 3rd pair generally fuscous-black, except a narrow pale margin round the black spot at the base, spines pale yellowish or whitish; *tarsi* pale yellowish-white; 1st joint, apical half, and 2nd brownish; 3rd black.

Abdomen above and beneath, black, posterior margins of the segments narrowly greenish, becoming yellow after death; last genital segment black, posterior margin pale brownish-yellow; external processes pale brownish-yellow.

♀ frequently as dark coloured as the ♂, or fulvous or testaceous; in dark specimens the apex of the 3rd pair of thighs and tibiæ (except around the spot at the base) black, in pale examples the legs are entirely yellowish; all the tibiæ, with the usual black spot at the base, and the apex of the last joint of the tarsi black.

Abdomen underneath, in life pale greenish, with a somewhat silvery appearance; after death yellow. Length, ♂, $1\frac{1}{2}$; ♀, 2 lines.

Allied to *P. tiliæ*, but it is smaller than that insect, and has not its green head, pronotum and scutellum, nor the spotted apical areas of the membrane. In repose, the ♂ has a peculiar dark appearance between the base of the elytra and the apex of the clavus, owing to the abdomen shining through; and, in one of my specimens, I observe that the whole of the nerves have a fuscous margin on either side, and the apical areas pale. I have compared it with the descriptions of *P. glandacia* and *fuscula* of Fieber, to which section it belongs, but it does not agree with either.

Very common on elms in July and August: taken by Mr. Douglas and myself at Lee.

Species 3.—PEDIOPSIS CEREÆ, Germ.

Iassus cereus, Germ., F. Ins. Eur., 17, 14.

Bythoscopus nitidulus, Panz., D. I., 143, 12?

Pediopsis cerea, Fieb., Verhandl. d. k. k. zool.-bot. Gesell., 458, 2 (1868).

♂ and ♀ pale brownish-yellow. *Scutellum* with a black or brown triangular spot at each basal angle. *Elytra*, in the middle, with a short, transverse, brown band.

Head brownish or yellow. *Face*, near each eye, with or without a small black or brown spot.

Thorax: *pronotum* pale brownish or yellowish, with a somewhat indistinct, fine, central keel; crenulation as in *P. tiliæ*. *Scutellum* yellowish, brownish, or brownish-yellow, with a black or brown triangular spot at each basal angle. *Elytra* pale brownish-yellow; *clavus*—inner margin with a short brown streak

extending for a little distance on either side of the central nerve; *corium*, in the middle, between the 1st and 3rd longitudinal nerves, with a transverse brown band; beyond the apex of the clavus generally a more or less defined brown patch; membrane apex more or less brownish. *Legs* pale brownish-yellow; *thighs*—3rd pair generally with a longitudinal, black streak on the upper margin next the apex.

Abdomen (♂) above, black, posterior margins of the segments very narrowly yellowish, sides of the three last segments broadly yellowish; beneath black, posterior margins of the segments pale brownish-yellow; terminal segment black; last genital segment black, apex and lower margin yellowish; external processes curved, yellowish, clothed with fine white hairs. Length, 2 lines.

Easily separated from *P. tiliæ* by the absence of the green or yellowish-green head and pronotum.

The only specimens I have seen are those taken by Mr. Douglas and myself in the sallow pit, Lee, in August, and at Dunoon, Scotland, in September.

(To be continued).

NOTES ON *ANISOTOMIDÆ*, WITH DESCRIPTION OF THREE NEW SPECIES (TWO FROM JAPAN, AND ONE FROM G.T. BRITAIN). No. 1.

BY E. C. RYE.

ANISOTOMA MULTIPUNCTATA, *sp. n.*

Oblongo-ovalis, convexiuscula, testacea, antennarum clavâ latiore fuscâ, articulo apicali brevi, quam præcedens angustiore; prothorace transverso, crebre fortiter punctato, lateribus fere a basi truncato apicem versùs angustatis, leviter rotundatis, apice levissime bisinuato, angulis anticis rotundatis, posticis rotundato-obtusis; elytris longioribus, lateribus parce ciliatis, fortiter punctatis, striis quasi irregulariter gemellatis, interstitiis punctis multo minoribus impressis; striâ suturali ab apice fere ad scutellum profunde impressâ, e punctis minoribus, crebris, regulariter dispositis formatâ: tibiis anticis linearibus.

Long. corp. 1½ lin. (Anglic.).

Mas ignotus.

Fem. pedibus simplicibus, femorum posticorum angulo exteriori subtus rotundato, haud prominulo.

Hab. Hiogo, Japan.

Somewhat of the size and facies of an ordinary pale example of *A. ovalis*, but with the antennal club of *calcarata*, and of more elongate-oval shape; the punctuation of the elytra is, however, different from that of any of the genus known to me, most nearly resembling

Liodes castanea in that respect; though, the interstitial punctures being smaller, the irregularly gemellated and more coarsely punctured striæ are more evident than in that insect.

A single specimen (♀) was found by Mr. George Lewis in 1869, among dead leaves, at an elevation of 2500 feet, near Maiyasan Temple, Hiogo, Japan.

ANISOTOMA CIRCINIPES, sp. n.

Ovalis, convexiuscula, testaceo-ferruginea, elytrorum suturâ lateribusque tenuiter picescentibus, antennarum clavâ fuscâ, articulo apicali conico, latitudine præcedentibus duobus subæquali; prothoracis disco sat crebre fortiterque, lateribus fortius, punctatis, his a basi truncato apicem fere truncatum versùs leviter rotundatis, angulis omnibus rotundato-obtusis; scutello crebre fortiter punctato; elytris fortiter punctatis, certo sitû quasi oblique transversim substrigosis, striarum punctis viâ regularibus, interstitiarum æque fortibus, paulo minus crebris; striâ suturali posticè profundè impressâ, scutellum versùs regulari evidentèrque gemellatâ. Long. corp. 1½ lin. (Anglic.).

Mas pedum intermediorum tarsis leviter dilatatis; posticorum angulo exteriorè subtus rotundato, haud prominulo, tibiis leviter elongatis, arcuatis, ad apicem intus curvatis, leviter incrassatis, tarsis crassiusculis.

Fem. ignota.

Hab. Nagasaki, Japan.

In facies nearly resembling a pale example of *A. litura*, Steph. (*ornata*, Fairm.), to which it is closely allied in the external male characters, but the club of the antennæ is not so stout, and the punctuation of the elytra, as in the preceding species, is quite unlike that of any of the genus known to me, being nearest to that of *Hydnobius punctatus*, though not so coarse.

A single (♂) example was taken by Mr. G. Lewis, among dead leaves, in a valley behind Suwosama Temple, Nagasaki.

As certain Russian and American *Colcoptera* are found also in Japan, I add the diagnoses of two species of *Anisotoma* likely to occur in the latter country.

ANISOTOMA CONVEXA, Motschoulsky, Bull. Mosc., 1845, part ii, p. 367.

Subhemisphærica, ferruginea, punctatissima, nitida, antennarum clavâ infuscata, elytris profunde punctato-striatis. ♂; corpore subovato, tibiis postice incurvis.

Long. 1⅔—larg. 1½ lin.

From Kamschatka: like *A. cinnamomea*, but smaller, shorter, and more convex.

ANISOTOMA LATERITIA, Mannerheim, *ibid.* 1852, part i,* p. 345.

Breviter ovata, convexa, rufo-ferruginea, oculis antennarumque clavâ nigro-fuscis, thorace transverso, crebre punctato, angulis posticis subrectis, elytris profunde striato-punctatis, interstitiis confuse seriato-punctatis. Long. $1\frac{2}{3}$ —lat. 1 lin.

From Sitkha.

The punctuation of the elytra of this species evidently somewhat resembles that of *A. circinipes*; but in the absence of more detailed characters (the above is all that is said about the insect by Mannerheim), its considerably larger size (the continental line being one-tenth, and the English one-twelfth of an inch), difference in shape, and deeply punctate-striate elytra, on which there is no mention of any transverse strigosity, seem, considering the different localities of the two insects, sufficient to separate it from *A. circinipes*.

ANISOTOMA MACROPUS, *sp. n.*

Oblongo-ovata, convexiuscula, ferruginea (minus matura, testacea), antennis breviusculis, clavâ vix obscuriore, articulo ultimo brevi quam præcedens evidenter angustiore; prothorace crebre punctato, lateribus leniter regulariterque rotundatis, basi utrinque subsinuato, fere truncato, angulis posticis obtusis, anticis rotundatis; elytris fortiter punctato-striatis, interstitiis parce subtilissimeque punctulatis, lateribus pro parte dimidiâ basali fere rectis, dein apicem versùs rotundato-atlenuatis; tibiis anticis linearibus; femoribus posticis subtus grossè punctatis.

Long. corp. $1-1\frac{1}{2}$ lin. (Anglic.).

Mas tarsis anticis intermediisque leviter incrassatis, pedibus posticis elongatis, femoribus ante medium subtus angulatim sub-dilatatis, angulo externo rotundato, haud prominulo, interno rotundato-denticulato, tibiis ad apicem modice incurvatis, tarsorum articulo basali elongato.

Fem. pedibus simplicibus, femorum posticorum apicibus externè rotundatis, internè rotundato-prominulis.

Hab. England.

I am indebted to Mr. G. C. Champion for both sexes of this species, of which he has taken two males and three females during the past summer and autumn, near Claremont, Surrey. The largest of these males is somewhat less in size than my largest example of *A. calcarata*, to which it may be compared in general facies, its linear anterior tibiæ, and the small apical joint of its antennæ: but it differs from that abundant and Protean species in being apparently always of a uniform clear ferruginous colour, of rather longer build, with shorter

* It may be here noted, that Gemminger and v. Harold quote the parts of the 'Bulletin de Moscou' erroneously. The publication for each year of that work consists of four Numbers, whereof 1 and 2 form Part 1, and 3 and 4 form Part 2. These two parts have a separate scheme of pagination, and Gemm. and v. H. mislead by quoting *A. lateritia* as Bull. Mosc. 1852, ii, p. 345: the Number of issue need not be quoted, as it has no different paging; but the Part must be quoted, for the above reason.—E. C. R.

antennæ; having the thorax more evenly rounded outwards at the sides, a little more strongly punctured, with the anterior angles even more rounded off, the posterior angles rather more evident, and the base with scarcely a trace of the sinuation so conspicuous just before the hinder angles in *calcarata*; the elytra not quite so acuminate behind, and with the punctures of the striæ larger; and the structure of the posterior legs in the male dissimilar. These have the femora on the under side, nearer the base than the middle, suddenly and obliquely contracted towards the base, the commencement of the contraction forming a distinct and minutely denticulated angle; their outer angle is entirely rounded off, with no projection; and the inner angle has a rounded prominence, much as in *dubia*, ♂: their tibiæ are very long and thin, slightly incurved and very slightly widened just before the apex.

Its more elongate and less convex shape and linear anterior tibiæ, the small apical joint of its antennæ, and the angular lower side of the middle of the hind femora of its ♂, render any comparison with *A. dubia* unnecessary.

From *A. scita*, Er., it appears to differ in its more elongate shape, the small apical joint of its antennæ (Erichson emphasizes the club of the antennæ of his *scita* as having the three apical joints of equal width), the elongate hind tibiæ and not prominent outer under-angle of the femora of its ♂, &c.

From *A. Triepkii*, to which it is somewhat closely allied in its short antennæ with small apical joint, and in the angularity of the ♂ posterior femur in the middle beneath, it differs at once in its average smaller size, undilated anterior tibiæ, longer, narrower and less convex build, narrower head, and rather longer antennæ, the scarcely perceptible bisinuation of the base of its thorax, the sides of which are not so strongly rounded outwards in the middle, or so contracted behind, the rounding towards the apex of its elytra not commencing at the shoulder, but at the posterior half of the side, the slight and single curve towards the apex of the posterior tibiæ of its ♂, &c.

Judging from description, it appears to agree with *A. geniculata*, Fairm., in being of a lighter colour than *calcarata*, and having the 3rd joint of its antennæ shorter in comparison, and the base of its thorax less strongly bisinuate; but it has not the knees darkened, or a wide flattened sharp tooth to the posterior femora and strongly incurved posterior tibiæ in the ♂; and it is longer, less convex, more strongly punctured, and with less obtuse posterior angles to the thorax.

ANISOTOMA PALLENS, Sturm ; Er., Ins. Deutschl., iii, p. 66.

For this interesting addition to our Coleopterous fauna we are indebted to Mr. J. J. Walker, who took three examples of it, by sweeping, at Deal, on 19th September last. The species can only be compared with *A. furva* and *ciliaris*, being very convex, short-ovate, and with very short antennæ ; but it is readily distinguishable from both of these by its smaller size, the much finer and less close punctuation of its thorax, and the finer punctuation of the striæ and finer and much less close punctuation of the interstices of its elytra, the sides of which are not ciliated.

I am indebted to Mr. G. C. Champion for one of these specimens.

? *ANISOTOMA GRANDIS*, Fairm.

The insect brought forward by myself with some reserve under this name has again occurred to me at Mickleham: it has also been found at Loughton, and (on several occasions) at Caterham, by Mr. Champion, and (I believe) at Esher by Mr. Marsh. The largest ♂ that I have seen measures $2\frac{1}{2}$ lines; the smallest ♀ $1\frac{3}{4}$ lines. The examination of these further examples, of both sexes (and, in the ♂, of varied development, as usual in the genus), if it do not reconcile my insect with Fairmaire's, at all events convinces me of its validity as a species, for which, if it prove distinct from *A. grandis*, I propose the name *anglica* (Stephens's *lycoperdi* and *tuberis* being, as I have satisfied myself from an examination of his collection, nothing but *cinnamomea*). In its rather flatter build, ferruginous antennal club, which is of looser structure, and has the second joint rather larger, this species, compared with *cinnamomea*, agrees with the description of *grandis*: but I find that the punctuation of the interstices of the elytra is of no value as a diagnostic character, some examples agreeing with Fairmaire's description in having this punctuation very evident, and others being, if anything, less perceptibly punctured than *cinnamomea*. The thorax cannot be said to be not contracted behind: it is distinctly less contracted in front than in *cinnamomea*, being more evenly rounded on the sides, with more rounded anterior angles, and its greatest width being more towards the front, so that it seems more transverse. In the largest and most highly developed ♂ (nearly as large as my largest ♂ *cinnamomea*), the posterior femora have the inner apical tooth not so large as the outer one (this inner denticle is in the other males scarcely developed at all), and there is no trace of the small denticles on the under edge of the femur towards

the base, so conspicuous even in much smaller and less developed males of *cinnamomea*. The tibiæ also are evenly and comparatively slightly curved, not having any sudden internal bend, and being flatter and, if anything, broader. I observe, also, that, comparing examples of the same sex and development, the apical joint of the tarsus is always shorter and stouter than in *cinnamomea*.

It should be remembered, that Fairmaire's species was described from a single (♂) example.

ANISOTOMA PUNCTICOLLIS, Thoms., Skand. Col., iv, p. 39.

This species is not apparently recognized; but, from its oblong shape, convex build, size ($1\frac{1}{2}$ lin.), linear anterior tibiæ, the truncate base of its thorax, and the transverse sub-strigosity of its elytra, it seems very near to, if not identical with, *hybrida*, Er. The comparison in Ins. Deutsch., iii, p. 76, of the sculpture of the elytra of the latter with that of '*badia*' is obviously a *lapsus* for '*parvula*.'

The late Prof. Hochhuth, in his enumeration of the beetles occurring in the Russian provinces of Kiew and Volhynia (Bull. Mosc., xlv, pt. 2, p. 210), records *A. cinnamomea*, as usual, from truffles, and states that *A. picea*, *obesa*, *dubia*, *pallens*, *ovalis*, *rubiginosa*, *scita*, and *parvula*, are found in fungi on the ground, in rotting tree-fungi, and among dead leaves and pine-droppings near trees in woods. *A. scita*, Er., he especially says is not rare, occurring in autumn in woods where pines and forest trees grow intermixed. I have heard of *A. badia* being found in fungus here; but, have myself, in spite of repeated searchings, never seen a single *Anisotoma* in fungus or fungoid growth. It seems strange that the universally common *calcarata* should not appear in Hochhuth's list.

Parkfield, Putney, S.W.:

October, 1873.

DESCRIPTION OF A NEW SPECIES OF *LIOSOMUS* FROM GREAT BRITAIN.

BY E. C. RYE.

LIOSOMUS TROGLODYTES, *sp. n.*

Ovatus, brevisculus, niger, fere glaber; antennis læte ferrugineis, clavâ brevî obscurâ; femoribus muticis, nigro-piceis, tibiis rectis tarsisque ferrugineis; rostro arcuato, crassiusculo, grosse longitudinaliter confluentim punctato, apice rufo-piceo; thorace oblongiusculo, opaco, profunde fortiter creberrime punctato, lateribus postice evidenter angustatis; elytris nitidis, ad basin quam thorace evidenter latioribus, profunde punctato-striatis, interstitiis planis, seriatim parce minuteque punctulatis.

Long. corp. (rostrò incluso) $1\frac{1}{4}$ lin. (Anglic.).

Mas ignotus.

The very small size of this insect (though, of course, stouter, it is scarcely, if at all, larger than my largest specimen of *Smicronyx jungermanniæ*) renders any lengthened comparison with other British species unnecessary; but it may be remarked that it differs from the smallest *L. ovatulus* in its lighter coloured and more slender legs, of which the femora are untoothed beneath and the anterior tibiæ almost straight, with no projection on the inner side and a very minute apical spur, its more slender antennæ, less stout rostrum, which is not so evidently thickened before the insertion of the antennæ and is much more strongly punctured (the punctures running into irregular longitudinal furrows), its more opaque and much more closely punctured thorax, the interstices of which are alutaceous and in parts almost converted into wrinkles, &c. From *oblongulus*, our only other known species, its much less size and shorter and broader build, duller and more closely punctured head and thorax, the more evident humeral angles and more marked striæ of its elytra, and its antennæ being inserted not so near the apex of the rostrum, will serve to distinguish it.

Being unable to make this species satisfactorily accord with any of which the descriptions are known to me, I sent it to M. Ch. Brisout de Barneville, who agrees with me in thinking it as yet undescribed. He considers it to come nearest to certain varieties of his *L. pyrenæus*, from which it differs in its rather more massive form, stronger punctuation, and thicker rostrum.

Two examples, both females, were found by Mr. J. J. Walker during April last, at Faversham, Kent, in moss.

Parkfield, Putney, S.W.:

October, 1873.

Notes on certain British Coleoptera.—

Bembidium 14-striatum.—Thomson (Opusc. Ent., fasc. iv, p. 361) so names *B. velox*, Er., nec Linn. (= *impressum*), which he recognises as a distinct species from *celer* (*lampros*) by its rather larger and wider build, the greater dorsal depression and less lateral rounding of its elytra, which have 7 (not 6) more lightly impressed striæ, with wider and flat interstices, and the more acute posterior angles of its more strongly transverse thorax. The insect (race or species) is well known to occur in this country.

Calathus nubigena, Hal., is distinguished from *melanocephalus* as a good species by Thomson, l. c. p. 364, by its antennæ before the base and its tarsi being fuscous, the usually infusate disc of its thorax, which sometimes is (with the antennæ and legs) entirely blackish, its more shining elytra, which are less acuminate behind, and its habitat. Apart from colour, there seems to me no difference between the two; if anything, the elytra appear to me to be more acuminate behind in the dark form, and I have taken dark *melanocephalus* at Shirley.

Agabus (Colymbetes) sexualis, Reiche, is *Gaurodytes alpestris*, Heer, and *G. Solieri*, Aubé, according to a type from Schaum, is *tarsatus*, Zett.; Thomson, *l. c.* p. 368. Supposing Thomson to be right in these determinations, *Solieri* will stand for the latter species, being four years anterior in date to Zetterstedt's name.

Homalota londinensis, Sharp, = *Atheta Gyllenhali*, Thoms. (*terminalis*, Gyll., *nec* Grav.); Thomson, *l. c.* p. 376. Thomson, Sk. Col., iii, p. 68, gives the same size for his insect as for *elongatula*. The *terminalis* with which Dr. Sharp compares his species is apparently Gravenhorst's.

Homalota ignobilis, Sharp, = *fungicola*, Thoms.; *H. fungicola*, Sharp, = *sericans*, Thoms.; Thomson, *l. c.*

Actocharis Readingi, Sharp (1st May, 1870).—The 5th vol. of the 2nd series of the Bull. Soc. Linn. Normandie, at p. 19, contains the first publication of M. Fauvel's *Actocharis marina*, for the generic and specific names of which that author claims priority over Dr. Sharp. This 5th vol. is stated to be for 'Année 1869—70' (an amalgamation in one issue of the usual work of two years, evidently caused, as in so many other French works, by the late war), and it bears on its inner title the date 1870, and on its wrapper the date 1871. As will be seen from the result of enquiries of competent authority in France by myself, recorded in the Entomologist's Annual for 1872, p. 30, it is tolerably certain that this volume was not published at the earliest before the end of 1871, *if then*.

Scopæus subcylindricus, Scriba, is stated in 'L'Abeille,' viii (1872), p. 326, to be identical with *rubidus*, Muls., and the only locality given is "Grande Bretagne." Scriba himself (Berl. Ent. Zeitschr., 1868, p. 156) records his insect from Spain. *S. rubidus* is at all events quite distinct from *S. Ryei*, Woll.

Olibrus geminus, *piccus*, and *oblongus*.—Seidlitz, Fauna Baltica, p. 157, erects for the reception of these species a new genus *Olistherus* (a name subsequently changed by him to *Stilbus*, as *Olisthærus* is pre-occupied in the *Brachelytra* by Erichson), distinguished from *Olibrus* proper by the following characters:—Metasternum not reaching in front beyond the middle coxæ, and separated from the prosternum by a distinct short mesosternum. Front femora not hollowed out on the under margin, apical spur of tibiæ distinct, 2nd joint of hind tarsi only slightly elongate, narrower than the 3rd, elytra with only an impressed sutural stria.

Meligethes memnonius, Wat. Cat.—M. Ch. Brisout de Barneville, to whom I have forwarded examples, tells me (as expected) that this is *morosus*, Er. He considers that *memnonius* is intermediate between *difficilis* and this species, or perhaps a var. of one of them.

Elater præustus, Schiödte, *nec* Fab., is identified by Thomson, *l. c.* p. 388, with *pomorum*, (Geoffr.) Germ.; but he is evidently wrong in this, Schiödte's insect in no way agreeing with the true dull-red, flat-intersticed *pomorum*, but being palpably *pomona*, Stephens;—an insect which, according to Seidlitz (Fauna Baltica, p. 119), is almost the commonest of its genus in Livonia.

Trachyphlæus myrmecophilus, Seidlitz.—Dr. Seidlitz, to whom I have sent one of Mr. Moncreaff's specimens, informs me that it is correctly so named.

Liosomus oblongulus, Boh.—Besides the further two (♂) specimens recorded by Mr. Walker, from Chatham, at p. 84 of the present vol. (and which I have

compared with my original British exponent), two others (both ♀) have been taken at Caterham by Mr. G. C. Champion during the past summer, and have been corroborated for me by M. Ch. Brisout, who tells me that he has the species from the French Alps and from the neighbourhood of Lyons.—E. C. RYE, Parkfield, Putney, S.W.: *October, 1873.*

Vanessa Antiopa near Brighton.—A fine specimen of *Antiopa* was caught at Hassock's Gate, about seven miles from Brighton, the day before yesterday. It was brought to me alive this morning, and is now in my possession. The margins of the wings are of a pale yellow colour; from this, and from the lustre on the wings, and the perfect condition of the fringes, I think the insect must have been bred in this country.—H. Goss, 8, Goldsmid Road, Brighton: *Sept. 22nd, 1873.*

Vanessa Antiopa near London.—On the 28th ult., E. Hodder, gardener to J. S. Oxley, Esq., was fortunate enough to capture a fine specimen of *Vanessa Antiopa* in the latter gentleman's grounds while at rest on a gravel path. The margin of the wings is of pale straw colour. The specimen is now in my cabinet.—J. R. WELLMAN, 14, Portland Place North, Clapham Road, S.W.: *September 20th, 1873.*

Sphinx convolvuli at Huddersfield.—A fine male specimen of *Sphinx convolvuli* was taken by my friend, Mr. Charles Ramsden, in his garden at Longroyde Bridge, on August 30th, at rest on a wall. Mr. Ramsden has kindly placed the specimen in my cabinet.—JAMES VARLEY, Almondbury Bank, Huddersfield: *Sept. 16th, 1873.*

Additional notes on the egg, &c., of Phytometra ænea.—At page 163, Vol. ii of this Magazine, I gave a description of the larva of this species, with some notes on the egg and cocoon, which I wish now to amend and enlarge.

On 19th June last, I obtained three or four eggs from a moth which I had shut up in a glass cylinder with sprigs of milkwort; however, she chose to deposit only on the lino covering. On examining these eggs with an inch object glass, I found that they did not correspond with the short description I had given in 1865, and fancied I had somehow got hold of another species, but in due time the larva appeared, and looked and behaved so exactly like the former brood, that I became quite satisfied that my puzzle arose from my not having examined the eggs formerly so minutely as I had now done. They had then come to me not long before the hatching of the larvæ; I must have looked at them with a lens of low power, and so missed their true structure.

I find the egg then is of the usual noctua shape, somewhat flattened, the apex occupied by a small round patch of tiny irregular network; all the rest of the shell, down to the flat under-surface, covered with a most beautifully regular three-cornered reticulation, so exactly designed, that, wherever the eye rests, it involuntarily forms hexagons out of half-dozens of the triangles. Each of the knots at the angles of the network is furnished with a comparatively longish curved spine; the colour of the shell is whitish, mottled with long blotches of pale pink, which are disposed horizontally round the egg; the lines of triangular network are pink, the spines pink with brown tips. A short time before the larva is hatched, the egg becomes purplish all over.

To the present date, this is the most remarkable egg I have seen, and whilst contemplating its spiny ornamentation, one cannot help being reminded of old Gilbert White's remarks on the parturition of hedgehogs! (Letter xxxi to Thos. Pennant, Esq.).

Of the larva, I have nothing fresh now to say.

The cocoon, made of a tough texture of greyish-white silk, is not quite half an inch long, and about three-sixteenths of an inch wide, with a few outside threads to draw round the surrounding leaves, &c. The pupa is nearly three-eighths of an inch long, cylindrical, slender, and remarkably even in bulk throughout (remining one in this respect of the pupa of an *Hepialus*), blunt at the head, the abdominal rings deeply cut, the last segment alone tapering, and ending in a blunt tip with two extremely short blunt spikes; the colour on the head and wing-cases a rich olive-tinted brown, on the rest of the body a bright reddish-brown; the skin rather glossy.—J. HELLINS, Exeter: *September 20th, 1873.*

Batrachedra præangusta.—It was this summer that I bred the specimen referred to in your October number. It was between two leaves when I found it, and above three parts grown; much brighter in colour than the full-fed larva described by Mr. Stainton; the brownish stripes being bright reddish, the ground colour pale greenish-yellow: so large a larva that I expected from it a good sized *Gelechia* at least. I expect it will usually feed up in the catkins, as Mr. Wilkinson has bred it freely from those of the willow; and that only exceptionally late larvæ spin the leaves, which may account for their being found so rarely.—JOHN SANG, Darlington: *October 10th, 1873.*

Miscellaneous captures at Glanville's Wootton.—Having met with better success than usual in September, I send a list of the best captures; *Tethea subtusa*, *Ennomos erosaria*, *Peronea cristana*, *Cerostoma horridella*, *Gracilaria hemidactylella*, *Ecophora flavimaculella*; *Cassida vibex*, *Phlæophilus Edwardsi*, *Trimorphus humeralis*.

Gonopteryx rhamni has been unusually abundant this autumn, and the *Vanessæ* unusually scarce, with not a single specimen of *C. phlæas*.—C. W. DALE, Glanville's Wootton, Sherborne: *3rd October, 1873.*

Abundance of Halesus auricollis, Pict., in *Wharfedale*.—In 1869, I received several examples of this species from Dr. Buchanan White, taken at Rannoch (see Ent. Mo. Mag., vol. v, p. 277), then new to Britain; and up to a few days since they were the only British examples I had seen, though I possessed it from Austria (types of *H. nigricornis*, Brauer, nec Pictet), and from Bürgdorf in Switzerland (Meyer-Dür). During the meeting of the British Association at Bradford, I made on the 20th September, in company with Prof. Lawson of Oxford, an excursion to Bolton Abbey. The weather was most detestable, and we were totally unprovided with entomological apparatus; but I brought back several of this species from the meadow near the Abbey. On the 24th, another excursion was arranged under the guidance of Mr. Howard Birchall, who was well acquainted with the district; and we were duly armed with nets, &c. This was a glorious autumn day, bringing out the magnificent scenery of Wharfedale to great advantage. The insect was in myriads all the way (about seven miles) from Ilkley Station to the Abbey. By shaking a branch near the river the air became alive with the caddis-fly, and the

grass swarmed with it. I think I never before saw any species in such abundance, and a large supply was naturally taken. A search for the larva and its case was not very successful, probably because the Wharfe was much swollen by the recent rains, and an examination of the stones in the ordinary bed of the river impossible. I, however, found one case which sufficiently agreed with Pictet's description; it being a tube composed of sand and vegetable fragments intermixed. Pictet and Brauer both give October as the month of the insect's appearance, hence it is no doubt a late autumnal species.—R. McLACHLAN, Lewisham: 29th September, 1873.

Obituary.

Alexis Fedtschenko.—On the 14th—15th of September, Mont Blanc claimed another victim. Alexis Fedtschenko, when only a comparatively short distance from its summit, was overtaken by a snow-squall, and subsequently died from exhaustion, under circumstances which caused imputations of the most serious nature to be made against his guides, although the latter were acquitted upon local investigation. (Judging from letters in our daily newspapers, they have not been universally absolved by alpine travellers). In Western Europe it is possible that few had even heard the name of this intrepid naturalist, and it would ill-become the writer of this notice, who had the pleasure of his personal acquaintance, to pass over his memory without some brief record. During the years 1869—71, he made (in company with his wife) three perilous scientific journeys into Central Asia, eventually reaching Khokand, to which place few 'disbelievers' had ever penetrated; and he made enormous collections in all branches of Natural History, and especially in entomology. After his return, he set about working out these collections, towards which end he was aided by a very liberal grant (15,000 roubles, = £2250) from the Russian Government of Turkestan. He sought the assistance of specialists in all departments, and, with his wife, visited London, and various continental cities in pursuit of this object. During the greater part of the present year he was in Germany, from whence he proceeded to Switzerland, and met his death in the manner above stated. The writer is not sure as to his exact age; but he was born at Irkutsk in Siberia, and was quite a young man, far above the ordinary stature, and of powerful physique. The great work upon which he was engaged will be continued under the superintendence of his widow, Madame Olga Fedtschenko. A good preliminary sketch of his three journeys is to be found in the *Berlin Zeitschrift für Erdkunde*, band vii, pp. 170—201. He was one of the founders of the 'Société Impériale des Amis des Sciences Naturelles, etc.,' attached to the University of Moscow, and distinct from the well-known 'Société Impériale des Naturalistes' of the same city. Of the many victims among its devotees, Mont Blanc has probably never before claimed one who could be so ill-spared to Natural Science.—R. McL.

Reviews.

ENDOMYCICI RECITATI. A Catalogue of the Coleopterous group Endomycei, with descriptions of new species, and notes. By HENRY STEPHEN GORHAM, Vicar of Shipley. London, Williams and Norgate, (September) 1873: 8vo, pp. 64, 1 pl.; price Four Shillings.

The title sufficiently explains the scope of this useful publication, which practically 'posts up' Gerstäcker to the present time. Mr. Gorham, who adopts the

term *Endomycici* (rectius *Endomychici*) for the group, as parallel to *Carabici*, with subordinate families, *Eumorphidæ*, &c., is possessed of Guérin's types, as well as many of Gerstæcker's, and consequently is enabled to do good service by reconciling those authors' descriptions. He characterizes as new genera, *Heliobletus*, p. 41, a tropical representative of *Dapsa* (*H. servilis*, sp. n., Borneo), and *Aphorista*, p. 45, differing from *Epipocus* in not having the penultimate joints of the antennæ internally acuminate, and in its claws being strongly toothed internally at the base (type, *Mycelina lata*, Gerst.), and describes in all 37 new species. The work is illustrated by a very well executed steel plate by E. W. Robinson.

RESEARCHES IN ZOOLOGY, illustrative of the Structure, Habits, and Economy of Animals; by JOHN BLACKWALL, F.L.S. Second edition. London, John Van Voorst. 1873. 8vo.

To the readers of this Magazine, Mr. Blackwall's name will be familiar as a celebrated arachnologist, the author of one of the most magnificent works on spiders that has ever appeared; but as a general naturalist he may be less known, excepting to those who may have read the first edition of his Researches published 39 years since. The range of subjects discussed, and the minuteness of the observations recorded, show that the author is a naturalist of no common order,—a worthy follower of Gilbert White,—and, as he was in 1834 not a young man, it is refreshing to some of us to find how enthusiasm for Natural History can be sustained to an advanced age.

The portions of the work most interesting to our readers will no doubt be the chapters treating upon the means whereby insects adhere to vertical surfaces of highly polished bodies, and their movements thereon, the experiments on the poison of spiders, and the chapters on the flight of gossamer spiders and on the construction of the webs of geometric spiders. Mr. Blackwall's theories on several of these subjects have not been allowed to pass unchallenged, and on some of them, especially those respecting the movements of insects on polished surfaces and the flight of the gossamer spiders, there has been much controversy. We do not find that he has in any way changed his opinions. He still maintains that the acrobatic performance of insects on a vertical polished surface is owing to the secretion of an adhesive fluid and not to atmospheric pressure, and that aeronautic flight is obtained by means of filaments of web drawn out by currents of air. The experiments on the poison of our native spiders seem to show that it is of no effect upon man and the higher animals, nor even upon spiders themselves, but proves fatal more or less rapidly to insects upon which they prey. Observations upon the length of life of spiders showed that a little over four years is the probable maximum. With regard to the poison of these animals, we know a recent instance in which a large spider was blamed for having caused temporary paralysis in a kitten which was playing with the Arachnid when stricken; but the evidence is only circumstantial.

There is a genuineness about the book that renders it delightful reading; but we think, for a second edition, its tone is a little too antiquated: the quotations from the old writers appearing in the first edition are carefully reproduced, but there is too great an absence of notice of the enormous mass of literature relating to the several subjects published since 1834, and the want of references to the works of the authors who have combated Mr. Blackwall's theories is a disadvantage to the independent reader.

NOTES ON BRITISH TORTRICES.

BY C. G. BARRETT.

(Continued from page 100).

Peronea cristana, Fab.

Peronea permutana, Dup.—Altered by Wocke to *permutatana*. Mr. Doubleday tells me that the name in Duponchel's Catalogue is *permutana*.

Peronea variegana, Schiff.

Paramesia aspersana, Hübn.—Feeds on *Spiræa ulmaria* in the Norfolk fens, emerging a week or two earlier than *Peronea Shepherdana*.

Paramesia ferrugana, Fr.—This species is partially double brooded, the first brood (which is scarce) appearing in June; it is paler in colour, sometimes differing very considerably from the autumn specimens. Some specimens have a small black dot on the fold, and this variety has been described as a distinct species (under the name of *selasana*) by Herrich-Schäffer, Heinemann, and others. Professor Zeller tells me that he does not think it truly distinct, and my specimens, which he named *selasana*, are certainly (as I think) summer specimens of *ferrugana*.

Paramesia caledoniana, Steph.—Dr. Wocke in his list admits *selasana* to the dignity of a species, yet sinks this really distinct insect into a variety of *ferrugana*. For this there is not the slightest ground.

Teras caudana, Fab.—M. Jourdheuille states that the larva feeds between united leaves of *Populus tremula*.

Pæcilochroma profundana, Fab.—M. Jourdheuille says: "larva between oak leaves, sometimes in oak apples."

Pæcilochroma corticana, Hübn.—This larva also feeds frequently in oak apples (galls of *Teras terminalis*), as well as between oak leaves.

Pæcilochroma Bouchardana, Dbld.—This is *rubiginosana*, H.-S., as corrected by Mr. Doubleday in his supplement.

Pæcilochroma tenerana, Dup.—Corrected by Doubleday and Wocke to *Ratzeburghiana*, Rtz. Found among spruce fir.

Pæcilochroma Hawkerana, Stn.—Corrected by Wocke to *consequana*, H.-S., an earlier name. Professor Zeller tells me that it is new to him, but that Wocke is probably right.

Pæcilochroma signatana, Dougl.

Pæcilochroma oppressana, Tr.—Not now a rare species, having been taken some years ago in great numbers by Dr. Knaggs and others near London. I have also found it in Norfolk.

Anisotænia ulmana, Hübn.—This pretty species is common in the lanes around Haslemere, Surrey, frequenting hazel.

Roxana arcuana, Clerck.—I have always found this species flying over and settling upon stunted oak bushes in woods, not upon *Pteris aquilina*. In Epping Forest Mr. Doubleday finds it on hazel.

Semasia populana, Fab.—Mr. Doubleday, in his list, substitutes *ephippana*, Hübn., but it seems to be generally admitted that this is the true *populana* of Fabricius.

In the Norfolk fens its larva feeds in the shoots of dwarf willow (*Salix repens*?). I once found the perfect insect sitting in a blossom of *Parnassia palustris*, apparently extracting honey, a very unusual circumstance among the *Tortrices*.

Semasia spiniana, Fisch.—Prof. Zeller says: “only among *Prunus spinosa*,” but in this country we find it about hawthorn hedges, flying about sunset.

Semasia obscurana, Wilk.—Under this name Wilkinson accurately describes *gallicolana*, Zell. (not *obscurana*, Steph.), the only fault in his description being that he omits to say that the rich chestnut-brown of the fore-wings is much clouded with dark grey with a bluish gloss. From *obscurana*, Steph., it differs in the greater breadth of the fore-wings, the more upright, clearer and whiter dorsal blotch, and the more richly coloured apical space.

This species, as I have already remarked, has also been confounded with *Halonota costipunctana*, and, under that name, its larva is recorded as feeding in “oak apple” galls (galls of *Teras terminalis*). It is well known and not scarce in Germany, but exceedingly rare in this country, apparently occurring in woods in the south of England. Mr. Sang has kindly sent me specimens taken, he believes, at Darenth. Mr. Doubleday has also British specimens.

For this species the name of *gallicolana*, Zell., must be retained.

Semasia obscurana, Steph.—Stephens’ description “Anterior wings “obscure, brown, with darker clouds, towards the apex of the costa “are a few rather indistinct whitish abbreviated lines, placed irregularly, and on the middle of the inner margin is a faint whitish

"spot, composed of two parallel lines, the extreme hinder margin with "a slender black line; cilia fuscous, with black tips; posterior wings "fuscous, cilia paler" (Ill. 4, p. 98) agrees tolerably well with three specimens in Mr. Doubleday's collection, which were named *obscurana* by Stephens himself, but it does not agree with that of Wilkinson, which, as I have already said, refers to the previous species. In these three specimens the fore-wings are narrower than in *gallicolana*, the costal streaks shorter and less distinct, and the dorsal blotch is decidedly flatter and more oblique as well as more dusky in colour. A specimen (agreeing precisely with these) is in Mr. McLachlan's collection, taken by him at Darenth Woods.

Very little seems to be known of this species. Professor Zeller thinks it very close to his *suspectana* from Livonia, but will not venture to unite them; Dr. Wocke ignores it altogether, from which I imagine that he could make nothing of it, *Pædisca obscurana*, H.-S., which appears in his list, being evidently a different species allied to *Halonota trigeminana*.

In Mr. Doubleday's collection there is yet another species which has been mixed with *obscurana*. It is exceedingly close to *motacillana*, Zell., but differs in the form of the dorsal blotch, and in the colour of the hind-wings, which, in *motacillana*, are uniformly blackish. It does not seem advisable, however, to describe it as a novelty, unless more specimens can be obtained for comparison, since it is just possible that *motacillana* may vary sufficiently to include this specimen.

I wish to draw the especial attention of collectors in the woods of the south of England to this small group of excessively rare species, the true limits of which it is difficult to define, from the scanty materials obtainable.

Semasia Wæberana, Schiff.—M. Jourdheuille says that the larvæ are to be found of all ages at once feeding on the inner bark of fruit trees, and assuming the pupa state in their burrows.

Semasia Janthinana, Dup.—According to M. Jourdheuille's calendar, the larva feeds in decaying berries of hawthorn, but hibernates in a silken cocoon on the surface of the ground. Professor Zeller tells me that this species is very rare in Germany.

Semasia rufillana, Zell.

Semasia nanana, Tr.—M. Jourdheuille states that the larva feeds in leaves of fir, assuming the pupa state among them in a white web.

Semasia vacciniana, Fisch., Zell.—M. Jourdheuille says: "Larva "between leaves of myrtle and barberry."

Eucelis aurana, Fab.—Changed by Mr. Doubleday in his list to *mediana*, Fab., W. V., but Dr. Wocke retains *aurana* as the anterior name.

Ephippiphora Trauniana, Schiff.

Ephippiphora regiana, Zell.

Ephippiphora argyrana, Hübn.—M. Jourdheuille says: "Larva "in moss and bark of trees."

Ephippiphora (Coccyx) vernana, Knaggs.—Described by my friend Dr. Knaggs in the Ento. Mo. Mag., vol. iv, p. 122, and also noticed in the Ento. Ann., 1868, from three specimens taken at the end of March, 1866, in Darent Wood.

I place it here because Dr. Knaggs describes it as being closely allied to *argyrana*. It is, I think, the only recognised species of British *Tortrix* of which I have been unable to obtain either a native or foreign specimen for examination. It seems to be totally unknown on the Continent, and is omitted by Dr. Wocke from his list.

No more specimens have been recorded, but this may well arise from the time of its appearance. It is extremely desirable that those who have the opportunity of collecting in the woods of Kent, Surrey, and Sussex, should endeavour to make it a little better known, and, at the end of March, there is not much else out to divert their attention from it. It must be borne in mind, however, that *argyrana* being variable in the colour of both fore- and hind-wings, and also in size, there is a probability that *vernana* may prove to be only a variety of it. Mr. Doubleday, who has seen one or two of the original specimens, is of this opinion.

Ephippiphora nigricostana, Haw.—In Germany this species is better known as *Remyana*, Koll., a later name, but Dr. Wocke corrects this. It has also been confounded with *Antithesia fuligana*, from the fact that both feed in the same plant—*Stachys sylvatica*.

Stigmonota nitidana, Fab., and *S. Weirana*, Dougl.—I sent specimens of both to Prof. Zeller, who tells me that he thinks *nitidana* identical with his *flexana*, which he breeds from *beech*, and *Weirana* only a dark variety of the same species. He has sent me three specimens of *flexana* which appear to me most decidedly identical with *nitidana*,

only slightly darker, and as they are reared from the food-plant of *Weirana*, and as the markings of *Weirana*, when visible, do not seem to differ from those of *nitidana*, I think it will be impossible to maintain them as separate species. Dr. Wocke includes both in his list, but marks them as unknown to him; but *flexana*, which he also includes, is placed by him in another genus, about fifty species intervening between them.

Guenée substituted the name of *redimitana* for *nitidana*, apparently being doubtful as to what species was intended by Fabricius, and this alteration is followed by Mr. Doubleday in his list. Wocke, however, quotes *nitidana* of Fabricius, and of Stephens and Wood, as identical, and *redimitana*, Gn. (with a ?) as synonymous, but he omits all reference to Wilkinson.

But the species under notice is clearly *nitidana* of Stephens and Wood, and presumably of Fabricius also, although I have no means of consulting his description, and the synonymy appears to me to be as follows:—

Nitidana, Fab., Steph., Wood, Wilk.

redimitana, Gn.

flexana, Zell., Hein.

vigeliana, H.-S.

Weirana, Doug., Wilk., var. ?

I do not, however, regard this matter as finally settled, and shall be glad of further information.

Mr. Douglas obtained his specimens of *Weirana* among beech, but it does not appear that he bred it. Prof. Zeller says of *flexana* (*nitidana*), "the larva lives between two united beech leaves in "October." Mr. McLachlan says—"I used to breed *nitidana* from "pupæ in little oval cocoons made of frass, collected in winter from "dead oak leaves (on the bushes) spun together, where there was no "beech. I am uncertain now whether the leaves had not been united "by the larva of *Rhodophæa consociella*." I have myself also bred it from these little cocoons, found among fallen oak leaves, when searching for *Lithocolletis* pupæ in Scotland.

Stigmonota Heegerana, Dup. ?—This is *corollana*, Hübn., as corrected by Dr. Wocke in his list. Specimens sent me by Prof. Zeller agree well with Wilkinson's description.

Heegeriana, Dup., is a *Dicrorampha* with a broad, flat, dorsal blotch, and is found in Austria only.

Stigmonota compositella, Fab.

Stigmonota internana, Gn.—I have found this pretty species commonly near Norwich. Probably it occurs throughout the Eastern counties, among furze.

Stigmonota perlepidana, Haw.—This species appears to feed upon *Orobis tuberosus* as well as *O. niger*, as it was common among the former plant in the woods near Haslemere, Surrey. M. Jourdheuille states that the larva lives between united leaves, but assumes the pupa state in the ground.

Stigmonota Leplastriana, Curt.—Dr. Wocke unites *capparidana*, Zell., with this species, but Prof. Zeller tells me that they are distinct, and this is confirmed by a specimen of *capparidana* from Sicily, which he has sent me. He and Mr. Stainton tell me that they have received *Leplastriana* from Herr Mann under the unpublished name of *cariosana*. For our insect, Curtis's name must of course be retained.

Stigmonota interruptana, Wilk.—This is not *interruptana*, H.-S., but *leguminana*, Zell. Mr. Doubleday inserted this name in the supplement to his list, but omitted the reference to the displaced name. The capture of several specimens is recorded in Ent. Mo. Mag., iii, p. 163; *interruptana*, H.-S. (*duplicana*, Zett.), is a very different species, allied to *coniferana*, but larger and handsomer. I have seen no British specimen of it.

Stigmonota dorsana, Fab.—This is altered in Mr. Doubleday's list to *lunulana*, W. V., but *dorsana* is retained by Wocke and Zeller as the older name. Prof. Zeller says this species occurs in pea fields, M. Jourdheuille that its larva feeds in pods of peas and vetches.

Stigmonota orobana, Tr.—I cannot find any published notice of the discovery of this species in this country. It is not noticed by Wilkinson, nor in any of the Ent. Annuals. It was first discovered in England by Mr. Thos. Wilkinson, of Scarborough, who bred specimens from the seeds of a species of vetch (I think, *Orobis niger*), and Mr. Allis sent some of them to Mr. Doubleday under the name of *lunulana*. Mr. Doubleday seeing that they were distinct, obtained the name from Lederer, and inserted the species in the supplement to his list. A description will therefore be useful.

Alar. exp. 6 lines.

Head, antennæ, and thorax olive-brown, face and palpi paler. Fore-wings shining olive-brown, with five pairs of distinct, white, costal streaks, and a creamy-white curved blotch on the middle of the inner margin, dilated at its apex, and

pointing towards the apex of the wing. Ocellus silvery, enclosing three black lines. Cilia olive-brown, with one or more distinct white dashes below the apex. Hind-wings fuscous, with the base pearly white.

♀ darker; the white dashes in the cilia indistinct.

Readily distinguished from *dorsana* by its broader and shorter fore-wings with rounded costa, and the hind margin much less oblique, and by the white dashes in the cilia. The dorsal blotch is also generally broader than in that species, and its apex dilated, but this is variable.

My specimens are from my late lamented friend, Mr. T. H. Allis, and from Messrs. Sang and T. Wilkinson, and were obtained, I believe, near Scarborough.

(To be continued).

DESCRIPTION OF SIX NEW SPECIES OF *EPITOLA* FROM THE WEST COAST OF AFRICA.

BY W. C. HEWITSON, F.L.S.

Having to examine Boisduval's two genera *Phytala* and *Epitola* in order to describe half-a-dozen new species belonging apparently, by the form of their wings, to both of them, I have had to place them all with *Epitola*, and to come to the conclusion that there is not a sufficient generic distinction to separate them. In the new species, the palpi are all erect; and Mr. Westwood, who has very kindly re-examined these genera, characterized by him in the "Genera of Diurnal Lepidoptera," comes to the same conclusion as I have, that the horizontal position of the palpi of *Phytala Elais*, from which he took his characters, probably arose from accident in the setting of the British Museum specimen, since mine has the said palpi much more erect. The junction of the first branch of the sub-costal nervure with the costal is repeated in the species which I have called *Hyetta*. I should have believed this to be only a malformation, did it not occur on both wings of both species. The robust tibiae of the fore-legs of *P. Elais* do not occur on any of my new species, and this alone remains as a difference by which to separate it from *Epitola*.

EPITOLA CERAUNIA, *sp. n.*

Upper-side: ♂. Dark brown. Anterior wing slightly irrorated with blue, elongated, but not so much as in *E. Elion*. The discal

spot, common in *Thecla*, oblong, and placed upon the second branch of the median nervure. Posterior wing irrorated with blue, chiefly beyond the middle.

Under-side : anterior wing dark brown, with two small spots at the end of the cell (one within it), and a sub-marginal series of seven large spots, all white. Posterior wing white, with a large triangular spot at the base, a smaller spot near the apex, and the outer margin (which is broad) rufous-brown.

Exp. $1\frac{5}{10}$ inch.

Hab. : West Africa (Rutherford).

EPITOLA CERCENE, *sp. n.*

Upper-side : ♂. Ultramarine blue. Anterior wing with the costal margin and apical third dark brown. Posterior wing with the costal margin broadly brown.

Under-side : pale brown. Both wings covered by numerous grey-white spots, tinted with blue before the middle of the anterior wing, where they form a band, and also two sub-marginal bands.

Exp. $1\frac{5}{10}$ inch.

Hab. : West Africa (Angola ; Rogers).

A variety of this species has a band of darker brown, bordered on both sides with white, across the middle of the anterior wing, on the under-side.

EPITOLA HYETTA, *sp. n.*

Upper-side : ♂. Anterior wing with the base of the sub-costal nervure, a spot within the cell, and a sub-marginal series of six large spots, brilliant ultramarine blue. Posterior wing of the same blue, with the nervures and costal margin (which is broad) dark brown.

Under-side : pale brown, the centre dark brown, marked by four white spots,—one in the cell, two between it and the apex, and one near the anal angle. Posterior wing with a broad white band at the middle, and a sub-marginal band of grey-white.

Exp. $1\frac{4}{10}$ inch.

Hab. : West Africa (Angola ; Rogers).

EPITOLA CARCINA, *sp. n.*

Upper-side : ♀. Rufous-brown. Anterior wing crossed near the middle, from the costal margin to the second branch of the median nervule, by a band of five white spots ; irrorated with blue from the middle of the wing to the middle of the inner margin. Posterior wing cerulean blue from the base to the middle, except on the costal margin, where it is brown.

Under-side : pale rufous-brown. Anterior wing as above, except that the band of spots is longer, and that there is a sub-marginal, indistinct, white band. Posterior wing with three or four minute pale spots near the middle.

Exp. $1\frac{3}{10}$ inch.

Hab. : West Africa (Old Calabar).

This is possibly the female of the last described. The only resemblance which they bear to each other is the band of spots on the anterior wing.

EPITOLA ZELZA, sp. n.

Upper-side : cerulean blue. Anterior wing with the costal margin and the apical half nearly, dark brown. Posterior wing with the costal and outer margins dark brown.

Under-side : pale brown. Both wings crossed by four bands of paler colour, curved as the outer margin is curved.

Exp. $1\frac{2}{10}$ inch.

Hab. : West Africa (Old Calabar).

EPITOLA CEPHENA, sp. n.

Upper-side : ♀. Dark brown. Anterior wing with a band of cerulean blue near the inner margin, commencing near the base and ending near the outer margin ; two white spots placed obliquely near the middle of the costal margin. Posterior wing with a central longitudinal band of blue.

Under-side : stone colour. Anterior wing dark brown, from the middle to the inner margin marked by a large spot of white ; four spots (where there are two above) from the costal margin. Posterior wing with very slight indications of white spots.

Exp. $1\frac{4}{10}$ inch.

Hab. : West Africa (Gaboön ; Rogers).

Oatlands, Weybridge :

October, 1873.

DESCRIPTIONS OF NEW SPECIES OF AFRICAN DIURNAL LEPIDOPTERA.

BY CHRISTOPHER WARD, F.L.S.

(continued from p. 60).

PAPILIO COLONNA, n. sp.

Upper-side : deep black. Fore-wing : the cell crossed by four white bands, the first near the base extending downwards to centre of lower wing, the second to extremity of hinder margin of fore-wing ; a small white spot at the end of the cell beyond, a double line of white, elongated, detached spots following the outer margin. Hind-wing with four narrow lunular white spots on the outer margin, two red spots at the anal angle ; tails long, narrow, and white at the extremities.

Under-side: brown, mottled with black; the white markings as above.

Expanse, $3\frac{1}{2}$ inches. Habitat, Ribé, East Africa.

This species remarkably resembles the western group of *Papilio* as represented by *P. Marcellus*.

PAPILIO PHILONOË, *n. sp.*

Upper-side: black. Fore-wing: the inner margin broadly marked with white, beyond, three large white spots. The cell crossed midway by a white band, with a second inner narrow band of three small white spots; apex with a group of six spots, and nine detached, circular, white spots following the outer margin. Hind-wing: the base broadly marked with white, outer margin with a broken band of white spots, the three lowest triangular and bifid.

Under-side: as above, with the base of hind-wing red.

Expanse, 3 inches. Habitat, Ribé.

Allied to *P. Tynderæus*.

ACRÆA RABBALE, *n. sp.*

Upper-side: fore-wing transparent, bordered outwardly by light brown, broadest at the apex, and crossed midway by an irregular, broken, black band. Nervures brown. Hind-wing light tawny-brown; near and following the outer margin, and connected with it at the nervures, a clear brown band.

Under-side: as the upper.

Expanse, $2\frac{1}{2}$ inches. Habitat, Ribé.

GODARTIA WAKEFIELDII, *n. sp.*

♂. *Upper-side*: deep black; the fore-wing crossed midway diagonally and through the cell by a broad yellowish-white band, broken by the nervures; beyond, near the apex, a short band of three clear white spots; outer margin with six small white spots, the two lowest the largest. Hind-wing: the base white; beyond, a clear band of eight detached white spots following the outline of wing, and continued round to the anal angle; below, a second band of six small spots, and the outer margin with eight small spots.

Under-side: reddish-brown; markings as on the upper-side, which are on the fore-wing bluish-white, on the hind-wing yellowish-white. Abdomen brown.

♀. Brown-black; marking as in the male, but more broadly white.

Expanse, ♂ $3\frac{1}{4}$ inches; ♀ $3\frac{3}{4}$ inches. Habitat, Ribé.

This species connects *G. Eurinome* and *G. madagascarensis*. The abdomen is brown as in *Eurinome*, whilst the markings generally resembles *madagascarensis*.

I have pleasure in naming this species after the Rev. T. Wakefield, to whom we are indebted for the discovery of the various new species from Ribé.

(To be continued).

THE LEPIDOPTERA OF IRELAND.

BY EDWIN BIRCHALL.

I have not been able for several years to give much attention to the *Lepidoptera* of Ireland. A number of insects not included in the list published in the Entomologist's Monthly Magazine, Vol. iii, 1866, have, however, been noticed by other entomologists, and I think a summary of them may be useful to those interested in Irish Natural History.

Nothing to my knowledge has yet been done towards the investigation of the South Coast from Waterford to Cork, an exceedingly promising district; for here, if anywhere in the British Islands, we may expect to find species derived from France and the Spanish Peninsula.

The province of Ulster also remains unexplored, but the occurrence of *Phibalapteryx lapidata* in considerable numbers, will, I hope, induce a search in the north of the island for other migrants from the shores of Scotland; I have little doubt it will meet with success.

Belfast and Letterkenny are each fortunate enough to possess an entomological clergyman, and to them I commend the matter.

I regret to notice that Irish entomologists pay little attention to the *Tortrices*, and none at all to the *Tineina*, and consequently our knowledge of the distribution of these groups in Ireland remains very imperfect.

No trustworthy confirmation has been obtained of the occurrence in Ireland of the following species included in the list of 1866; and I am of opinion that they should be struck out. Erroneous ideas or theories of Natural History are of comparatively little consequence, critics and time will certainly dispose of them; but it is obvious we can never arrive at correct conclusions if the facts from which they are deduced, or rather by which they must be tested, are false.

Pieris crategi.

Vanessa polychloros.

Lycæna Agestis.

The food-plant, *Helianthemum vulgare*,
is not, I believe, found in Ireland.

Lycæna Corydon.

Deilephila euphorbiæ.

Bombyx castrensis.

Epione vespertaria.

Notodonta bicolora.

Notodonta tritophus.

Nonagria concolor.

Neuria saponariæ.

Agrotis ravidæ.

Euperia fulvago.

Dianthæcia compta.

Dianthæcia carpophaga.

Ophiodes lunaris.

See the Rev.
J. Greene's re-
marks, Entomo-
logist, Vol. iii,
p. 157.

I take the present opportunity of drawing attention to the variety of *Melitæa Artemis* which occurs in Ireland. It differs widely from any which is found either in England, Scotland, or, I believe, elsewhere in Europe. The *Artemis* of Scotland appears to me to be the Alpine variety *Merope*, which Staudinger describes as "*Alpina, minor, obscurior.*" Boisdualval says of its larva that "it approaches in appearance the larva of *Cynthia* in having yellow spots on the back, "but bears no resemblance to the larva of *Artemis.*" Perhaps Scotch collectors will observe the larva of their *Artemis*, and report the result.

In the Irish *Artemis* the fulvous spots on the upper surface are largely replaced by white or cream coloured blotches, giving the insect at first sight the appearance of *Melitæa Cynthia*, ♂; it is larger than English, and very much larger than Scotch specimens of *Artemis*, the wings of the female frequently exceeding $2\frac{1}{4}$ inches in expanse.

Mr. Doubleday, who has reared the Irish insect, says that he did not observe any difference between its larva and that of the English *Artemis*; and although I am aware that the various varieties of *Artemis* run into one another, and that descriptions of them are only referable to one particular stage of the variation, I consider the Irish form so unusually distinct, that I venture to propose for it the name of *hibernica*.*

MELITÆA ARTEMIS, var. HIBERNICA.

♂. *Alæ supernè nigrae, anticæ maculis seriatim dispositis fulvis ad marginem posticum, aliisque in medio plurimis albis vel stramineo-albidis ad marginem interiorem coalescentibus, lituram formantibus, posticæ fasciâ latâ fulvâ secus marginem posticum (exemplarum typicorum maculis fulvis margine postico nigro angusto obsitis in varietate vel indiscretissimis vel nullis) ornatae: subtus pallide-fulvæ, signaturâ simili at indiscretâ.*

♀. *Alæ anticæ fulvæ, seriebus macularum albarum vel stramineo-albidarum duabus, interdum confluentibus fasciasque formantibus, fasciâ exteriorē trans alas posticas productâ, notatæ; posticæ ut in typicis, sed maculis stramineo-albidis nec fulvis ornatae.*

Alarum expansio ♂ 1 unc. 4 lin.—1 unc. 8 lin.; ♀ 2 unc.—2 unc. 3 lin.

Larva a larvis M. Artemidis Angliam incolentibus haud discrepat.

Habitat in paludosis Hiberniæ centralibus.

* Copies of a coloured plate illustrating these forms may be obtained upon application to me in accordance with the terms indicated on the slip inserted in the present No. of this Magazine. Fig. 1 represents the English form of *Artemis*; fig. 2 ♂ and ♀ of the Irish form (var. *hibernica*) fig. 3 the Scotch form (var. *Merope*).—E. B.

List of species of Lepidoptera observed in Ireland since publication of list in the Entomologist's Monthly Magazine, Vol. iii (1866) :—

VANESSA C-ALBUM.—Co. Wicklow, near Powerscourt Waterfall. The Rev. H. H. Crewe.

SYRICTHUS MALVÆ (ALVEOLUS).—Co. Galway. Miss Nugent.

SESIA CULICIFORMIS.—Killarney.

NOLA CRISTULALIS.—Co. Mayo. S. R. Fetherstonhaugh.

LITHOSIA COMPLANA.—Howth. Ent. Mo. Mag., Vol. iv, p. 91.

BOMBYX QUERCUS.—Rathowen, Mrs. Battersby. Queenstown, Mr. Bond. Ent. Mo. Mag., Vol. iv, p. 283.

CABERA PUSARIA, var. ROTUNDARIA.—Co. Mayo. S. R. Fetherstonhaugh.

EUPITHECIA LINARIATA.—Howth.

„ PIMPINELLATA.—Howth.

ENNOMOS TILIARIA.—Kildare. The Hon. Emily Lawless. Ent. Mo. Mag., Vol. iv, p. 283.

LOBOPHORA HEXAPTERATA.—Limerick. W. Talbot. Entomologist for 1872, p. 140. Abundant.

„ LOBULATA.—Do. do.

PHIBALAPTERYX LAPIDATA.—Co. Mayo. Entomologist, Vol. v, p. 215.

Mr. Fetherstonhaugh informs me that the moth is not uncommon in grassy places on the moors; it flies by day, and is easily disturbed. Attempts to rear the larva have hitherto proved unsuccessful, from ignorance of its food.

P. POLYGRAMMATA.—Co. Mayo. S. R. Fetherstonhaugh.

ACRONYCTA MENYANTHIDIS.—Letterkenny. The Rev. R. Harvey.

NONAGRIA LUTOSA.—Rathowen. Mrs. Battersby.

APOROPHYLA AUSTRALIS.—Co. Wicklow and Waterford.

APAMEA FIBROSA.—Killarney.

MIANA ARCUOSA.—Powerscourt.

CARADRINA MORPHEUS.—Powerscourt.

TÆNIOCAMPA OPIMA.—Limerick. W. Talbot.

CIRRÆDIA XERAMPELINA.—Drumcar. The Rev. H. H. Crewe.

DIANTHÆCIA CÆSIA.—Tramore. Warren Wright. The same unicolorous variety that occurs in the Isle of Man.

EPUNDA NIGRA.—Near Dublin and Galway.

HADENA GLAUCA.—Rathowen. Mrs. Battersby.

CUCULLIA ABSYNTHII.—Rathowen. Mrs. Battersby. Entomologist, October, 1873, p. 516.

HELIOTHIS MARGINATA.—Co. Galway and Howth.

HELIODES ARBUTI.—Killarney.

PLUSIA INTERROGATIONIS.—Rathowen. Mrs. Battersby. Near Ballinasloe in profusion. Hon. Emily Lawless. Entomologist for 1872, p. 100.

SCOPARIA TRUNCICOLELLA.—Co. Mayo. S. R. Fetherstonhaugh.

PYRALIS GLAUCINALIS.—Co. Wicklow.

ENNYCHIA ANGUINALIS.—Co. Galway.

„ ANGULALIS.—Co. Galway.

CHILO FORFICELLUS.—Co. Mayo. S. R. Fetherstonhaugh.

PLODIA INTERPUNCTELLA.—Dublin.

EPHESTIA FICELLA.—Dublin.

GYMNANCYCLA CANELLA.—Malahide.

PHYCIS SUBORNATELLA.—Howth and Bray Head.

PEMPELIA PALUMBELLA.—Bray.

HALIAS QUERCANA.—Queen's County. F. Smith.

PERONEA HASTIANA.—Rathowen. Mrs. Battersby.

„ MACCANA.—Co. Mayo. S. R. Fetherstonhaugh.

„ CALEDONIANA.— Do. do.

SARROTHIRIPA REVAYANA.—Killarney. Mrs. Battersby.

PENTHINA GENTIANANA.—Howth.

EUCHROMIA FLAMMEANA.—Co. Mayo. S. R. Fetherstonhaugh.

EPHIPPIPHORA SIGNATANA.— Do. do.

„ TETRAGONANA.—Howth.

„ BIMACULANA.—Killarney. Mrs. Battersby.

COCCYX SPLENDIDULANA.—Limerick. H. Marsden.

„ HYRCINIANA.—Howth.

EUPÆCILIA NANA.—Powerscourt.

COCHYLIS INOPIANA.—Co. Mayo. S. R. Fetherstonhaugh.

TALÆPORIA PUBICORNIS.—Howth. J. B. Hodgkinson.

SOLENOBIA TRIQUETRELLA.—Howth.

TINEA GANOMELLA.—Rathowen. Mrs. Battersby.

ADELA CUPRELLA.— Do. do.

BUTALIS FUSCO-CUPREA.—Howth. J. B. Hodgkinson.

ELACHISTA COLLITELLA.— Do. do.

„ CONSORTELLA.— Do. do.

Where no name is given as authority, I have captured the insect myself.

Kirkstall Grove, Leeds :

October 20th, 1873.

DESCRIPTION OF A NEW SPECIES OF *SILIS* FROM ANGOLA.

BY CHAS. O. WATERHOUSE.

SILIS APICALIS, *sp. nov.*

Nigra, elongata, parallela, tenuissime pubescens; ore, thorace, elytrorum basi, abdomineque (segmentis duobus apicalibus exceptis), testaceis. Long. $3\frac{1}{2}$ lin.

Head gently contracted posteriorly, the surface extremely finely and moderately thickly punctured, the forehead with a shallow impression, in the centre of which there is an indication of a longitudinal ridge, and on each side near the base of each antenna a slightly raised nodule; the clypeus testaceous, prolonged, wider and rounded at the apex, with a very indistinct longitudinal ridge in the middle. The mandibles and other parts of the mouth, and part of the under-side of the head, testaceous. Antennæ about the same length as the elytra, slender; 1st joint a little shorter than the 3rd, testaceous at the base and on the under-side; 2nd joint short, testaceous at the base; the 3rd to 10th joints very little wider towards their apices, sub-equal. Thorax testaceous (with a black spot near the scutellum), a little broader than long, a little broader than the head, with the anterior margin reflexed and bowed in front over the head, the sides nearly parallel, terminating posteriorly in a short, sharp spine, directed slightly outwards; the sides in the middle with a slight fold or incassation above the margin; the posterior margin angularly emarginate over the scutellum, the posterior angles obliquely truncated with two small, obtuse teeth, just within the lateral spine; the disc convex, divided longitudinally by a deep, broad channel; the whole surface excessively delicately and not very thickly punctured. Scutellum black, concave. Elytra scarcely broader than the thorax (shoulders rounded), testaceous, with the apical two-fifths black, minutely coriaceous, with the extreme base smooth. Meso- and metasterna black. The abdomen testaceous, with the exception of the upper surface of the apical two segments, and the two lateral triangular plates on the side of the apical segment. Legs black; the trochanters, the anterior coxæ, and the under-side of the anterior and middle femora reddish-testaceous.

Hab., Angola. (J. J. Monteiro, Esq.). Coll. Brit. Mus.

Var.? Thorax, under-side, the inner side of the tibiæ, abdomen, scutellum, and basal two-thirds of the elytra, testaceous.

Hab., West Africa.

British Museum: November, 1873.

Note on Tychius hæmatocephalus.—In the early part of 1872, my friend Mr. Lacy brought me for examination a *Tychius* which he had captured at Gosport; and I at once saw from its size and the shape of its thorax that I had nothing like it in my collection. Some time later in the year, I showed it to the Rev. H. S. Gorham, while on a visit to Portsmouth, and he instantly recognized it as *Tychius hæmatocephalus*, a species that had not been taken in England for many years,—

one specimen I think only being known, the British origin of which had begun to be doubted. I took the first opportunity of acquainting Mr. Lacy with his good fortune, and proceeded with him to its place of capture; and, after a careful search, I succeeded in turning out two more specimens of the *Tychius*, and numbers of *Sitones Waterhousii*, from under dwarf plants of *Lotus corniculatus*.

It appears to be very scarce: a twelve months' hunting off and on by both of us has only produced about a dozen specimens. The *Lotus* seems to be a favourite resort of *Coleoptera*; for, in addition to the above, I have taken from under it, *Trachypylæus squamulatus*, *scaber*, *spinimanus*, *aristatus*, and *myrmecophilus*, and have bred *Apion loti* and *Tychius squamulatus* from its seed-pods.—HENRY MONCREAFF, Portsmouth: October 18th, 1873.

Notes on Coleoptera at Braemar.—Whilst staying at Braemar, at the beginning of July last, in company with my friend Mr. J. S. Allin, we obtained many *Coleoptera*, including a number of the species known to have occurred there, and perhaps a few that have not been recorded from that locality. Although too late for a few species, we were there at perhaps the best time for general collecting.

I am aware that many of the following species have already been recorded from Braemar, but I thought a few notes on ways and means of capture, &c., would not be uninteresting. Amongst many others, the following species seem worthy of note:—

Notiophilus aquaticus; a very small dark var. occurred on tops of the mountains, rarely. *Harpalus 4-punctatus*, Dej.; apparently rare, but passed over at the time by me as *latus*. *Amara Quenseli*; rarely, under stones on mountain tops. *Hydroporus celatus*; in flood refuse, from mountain stream. *Oxytropa incrassata* and *O. rupicola*, Rye; under stones on mountain tops. *Homalota crassicornis*, *fallaciosa*, *diversa*, *nitidula* (common), *clavipes* (not uncommon), *tibialis* (very common), &c.; under stones, or in moss on mountain sides, also in flood refuse from mountain streams. *Tachinus flavipes*, *pallipes*, and *proximus*; in dung. *Bryoporus rugipennis*; a few examples from moss on mountain sides, and flood refuse from mountain streams, especially high up near the snow, and once even in my beating net: apparently widely distributed, but scarce. These examples vary considerably in the intensity of the punctuation of the elytra; in some specimens the punctures in the discoidal row seem to run into one another. *Mycetoporus* sp.? (*tenuis*, Sh.); rarely, in moss on mountain sides, especially near the snow. *Quedius xanthopus*; under pine bark. *Staphylinus fulvipes*; one specimen under deer dung. *Xantholinus lentus*; about a dozen examples, under rather fresh pine bark. *X. distans*; one specimen under a stone, and *X. tricolor* (type form with base of thorax dark) under bark. *Stenus brevicollis*; in moss. *Anthophagus alpinus*, *Geodromicus nigrita*, *Lesteva Sharpi* and *pubescens*, *Arpedium* and *Olophrum consimile*; in moss and in flood refuse from mountain streams. *Deliphium tectum*; in dung. *Agathidium rotundatum*; under bark. *Epuræa oblonga*; under pine bark. *Cryptophagus parallelus*. *Atomaria Hislopi*; in dung. *Aphodius nemoralis*; in dung. *Eros Aurora*; in saw-pit. *Podabrus alpinus* (var. of dark form, with entirely dark legs), *Telephorus figuratus* and *elongatus*; the latter in abundance, by beating firs. *Ernobius nigrinus*; by beating pines, and cut pine tops lying on the ground. *Cis punctulatus*. *Zilora ferruginea*; under pine bark, rare. *Pissodes notatus*, *Brachonyx*, and *Anthonomus varians*; beaten from fir. *Orchestes scutellaris*; sweeping by River Dee. *Cæliodes geranii*; abundant on

Geranium sylvaticum. *Magdalinus duplicatus*; very rare, beaten from young firs on the top of a low mountain. *M. phlegmaticus* and *Rhinomacer*; tolerably common by beating freshly cut pine tops. *Hylurgus minor*; rare, under pine bark. *Xyloterus lineatus*; boring in solid wood of fir. *Asemum*, *Pogonocherus fasciculatus*; by beating pines. *Chrysomela marginata*; sweeping by river.—G. C. CHAMPION, 274, Walworth Road, London, S.: September 13th, 1873.

Notes on Coleoptera at Esher.—Having had an occasional afternoon's sweeping at Esher since last July, I have met with the following rather rare species (in addition to many others that have already been recorded from that locality):—*Gyrophæna pulchella*; in fungus, rare. *Stenus brevicollis*; by sweeping in a marshy place. *Silvanus similis*; two specimens, swept from under fir trees, under the bark of which it doubtless lives. *Atomaria badia*; three examples, also swept from under fir trees. *Apion sanguineum*; two specimens. *Bagoüs lutulosus*; rarely, by sweeping in a marshy place. *Nanophyes gracilis*; about a dozen examples: the species was generally to be found on each visit, but never in any numbers (owing, perhaps, to my inability to discover its food plant), by sweeping in one little marshy place.—ID.: October 7th, 1873.

Coleoptera at Holy Island and Deal.—A stay at Holy Island, off the coast of Northumberland, during the greater part of the month of August, gave me an opportunity of investigating the *Coleoptera* of this rather promising-looking locality; my chief collecting-ground being the sand-hills which extend almost round the entire island, and which are covered with a heavy growth of "marram" grass (among which *Miana arcuosa* flew in swarms at sunset), ragwort, *Echium*, *Cynoglossum*, &c., &c. Unfortunately, the weather was so bad, during the whole of my stay, that my success was very limited, the following being, perhaps, the only noteworthy species out of fully 200 which came under my observation:—*Agathidium marginatum*, *Anisotoma dubia* (quite abundant, as many as 40 occurring in one afternoon), *Meligethes serripes*, *Salpingus ater* (1), *Aphodius lividus*, *Ceuthorhynchideus versicolor*, &c., by sweeping on the sand-hills; *Bembidium pallidipenne*, under tidal refuse; *Staphylinus stercorarius*, rarely, under stones; *Necrodes littoralis*, several, in a large dead fish on the beach; *Morychus æneus* (mostly defunct), under *Ononis*; *Serica brunnea*, very common under stones, in moss, and flying at sunset; and *Psylliodes marcida*, common, on *Cakile maritima*.

At Deal, in September, my success was much better, the following, among many others, occurring to me in a few afternoons work on the sand-hills:—*Saprinus metallicus*, about half a dozen, mostly crawling on bare sand in the hollows; in this way I found also *Syncecalypta hirsuta*, *Psammodytes sulcicollis*, *Helops pallidus*, &c., &c. *Calodera umbrosa*, *Aphanisticus pusillus*, *Dorcatoma bovista*, *Apion dissimile*, *Rhinoncus inconspicuous*, and *Hippodamia 13-punctata*, occurred by promiscuous sweeping on the sand-hills, &c.; *Ceuthorhynchus vicinus* (some ten specimens), and *C. Chevrolati* (one only), by persistently sweeping *Achillea millefolium*; *Masoreus*, *Homalota casula*, and *Hister bissexstriatus*, in moss; and a few *Lixus bicolor* under its favourite *Erodium cicutarium*.—JAMES J. WALKER, R.N., H.M.S. "Ariel," Portsmouth: 8th October, 1873.

Addition of two species to the British list of Tenthredinidæ.—

Tenthredo moniliata, Klug (Blattwespen, No. 153).—This fine addition to our list was taken by me at Rannoch in June last. It has the antennæ entirely black, the third, fourth, and fifth abdominal segments red, and the mouth, collar, and spots at the base of the hinder feet whitish-yellow.

Nematus quercus, Hartig (Blatt-und Holzwespen, p. 188).—I have taken several specimens of this pretty species in the neighbourhood of Glasgow, on birch and oak, at the end of May, and again in August. It is black, with the middle segments of abdomen red, and the feet red, white and black.—P. CAMERON, JUN., 136, West Graham Street, Glasgow: 14th October, 1873.

Hints as to the habits, &c., of the British species of Sesia.—The garden species, *myopiformis* and *tipuliformis*, are so well known as not to require special mention.

S. culiciformis is rather peculiar in its habits, the insect emerging from the pupa about 10 a.m., at which time it is to be taken drying its wings upon the stumps of birch trees that have been cut down for two years. After its wings are dry, it goes in search of a new locality, where the trees have only been cut down for a few months; and, on looking towards the sky after about two o'clock, the insects may be seen flying round about and across in all directions. I once caught about twenty in a couple of hours in Tilgate Forest, including a ♂ with a white belt in copula with an ordinary red belted ♀: this pair I swept into my net (which was attached to a pole about 12-feet high) while striking at a specimen on the wing.

S. formiciformis is common in Hackney marshes, and is to be bred freely by cutting off dead portions of osiers.

S. chrysidiformis is to be found feeding in the common dock or sorrel growing upon the undercliff in the Warren at Folkestone. When searching for the larvæ of this species, it is best always to select those plants which are sickly, as they are tolerably sure to contain a larva, which, feeding in such small roots, usually prevents the plant throwing up a blossom.

S. ichneumoniformis is common in the Isle of Wight at Shanklin, Ventnor, Black Gang Chine, Freshwater, and elsewhere, also at Folkestone; it feeds in the Birds-foot trefoil (*Lotus corniculatus*), and is very difficult to find in the larval state, owing to the food-plant being so abundant. The plan which after much labour I have found the best, is to select the largest and strongest plants growing in broken ground, where the roots lie exposed by the cracking of the cliff; and in such roots the larva or pupa is sometimes to be found.

S. cynipiformis is common in Darenth Wood and elsewhere amongst oak, and may be found sunning itself upon the tree trunks. The larva feeds between the bark and solid wood, and spins a small tight cocoon before changing to pupa: it may be found by wrenching the bark off.

S. philanthiformis.—I found the larva of this species for the first time on the 24th of May, 1870, at Onchan, near Douglas, Isle of Man, bred my first specimen on the 10th June, and caught my first on the 17th June. This species being so small is very difficult to take on the wing. The best plan is to watch a flat piece of rock exposed to the sun, when the little creatures may be seen to settle upon it; if the collector is not very quick they will be gone, without the eye being able to follow

them in flight. White paper attracts them equally well; indeed, all this family are fond of settling upon anything white, *S. ichneumoniformis* and *chrysidiformis* being often found settling on bare chalk. The larvæ always feed in the smallest stunted plants of the Sea-pink, growing absolutely on or between the crevices of the bare rocks; and are never found where the food plant grows luxuriantly in ordinary earth.

S. andræiformis.—Of this species I believe there are only five specimens known in this country, and it is extremely rare upon the continent. About five years ago I found a larva, which at the time I supposed to be that of *S. ichneumoniformis*, feeding in a dead stem of one of the *Centaureæ* in Greenhithe Chalk-pit; this died, and I have never taken one like it since. The following season, I found the larvæ of *ichneumoniformis* feeding in *Lotus corniculatus* at Ventnor; so the larva taken in *Centaurea* could not well have belonged to that species, and it may have been that of *andræiformis*. I have a very strong suspicion, however, that the latter feeds in dogwood: the first and third known British specimens were taken by Mr. Chant and Mr. Bouchard at Greenhithe, where that plant is very abundant; the second was beaten into the net out of that plant by Mr. Thorne in Darenth Wood; the fourth by Mr. Benjamin Standish in the chalk-hole near the Fox and Hounds at Darenth; and the fifth by the Rev. A. H. Wratislaw hovering over the same plant. This species, like the others, is, doubtless, an internal feeder, and to discover it, I would recommend the plan hereafter mentioned. Internal feeders, as is well known, prepare a way of escape, a few days before changing to pupa, by gnawing nearly to the surface, but never touching the outer bark, which is about the thickness of writing paper in young trees, and through which, when about to emerge, they force their way, projecting nearly half-way out: this is only done an hour or an hour and a-half before the perfect insect emerges; and, immediately after it creeps or rather jumps out of the pupa-case, it runs back to the tree to crawl up and dry its wings, an operation accomplished in less than two minutes on a hot morning, so there is but a very poor chance of finding tenanted pupæ projecting from the tree. In order to discover if a small tree contains a pupa (a difficult task, as there are no traces outside), I have found it best to take the tree in my hand and gently bend it on all sides, watching carefully for the first crack in the bark, as the indication of the presence of a tenant, of which more certainty is obtained by gently raising the bark at the place with a penknife. If there is a round hole, it is almost sure to contain a *Sesia* pupa, and the way to get it out is to saw the tree down to the ground, being careful to cut low enough or the pupa will drop below the incision, and be left behind. I have been served this unpleasant trick, so think it as well to warn others of the danger.

As to *S. scoliiformis*, I can give no fresh information, as on my only visit (in July, 1867) to the locality (Bryn Hyfred, near Valle Crucis Abbey, Llangollen) where it used to occur, I could find no recent trace of its existence.

S. sphegiformis is to be found in the alder, by working in the manner above described. I have taken it, commonly, in Tilgate Forest. The moth usually appears about the second week in June; but much depends upon the weather.

S. asiliformis I believe will be found, if sought for carefully in the same way, in the stems of black poplar.

S. bembiciformis is abundant in some localities, especially in woods amongst willow; the best way to get it is to find when a wood is going to be cleared, and give the wood-cutters a trifle to save the "maggots," as they call them.

S. apiformis: the cocoons are to be found throughout the winter in rotten poplars and aspens.—E. G. MEEK, 56, Brompton Road, S.W.: October, 1873.

Heliothis dipsacea at Sherwood Forest.—This insect occurred, flying over heather, at Sherwood Forest last August. The species seems entirely new to the district.—GEO. T. PORRITT, Huddersfield: November 7th, 1873.

Natural History of Crambus pinetellus.—On the 1st of August, 1872, Dr. F. Buchanan White, then at Eastferry near Dunkeld, kindly sent me some loose eggs of this species in a quill, and they hatched 14th to 16th of the same month.

Not knowing what food the larvæ required, and happening to have then unengaged a tuft of *Eriophorum vaginatum* growing in a pot, I ventured to put the young larvæ round the base of the grass, and then encircled the tuft with about an inch of damp moss;—I then took no further trouble with them throughout the succeeding winter beyond attending to the health of the grass, in watering it and exposing it to the air at intervals as the weather permitted.

Early in May, 1873, I observed that very few fresh green shoots made their appearance from the old brown tuft, so on the 9th, I turned it out of the pot to examine its state. I found that the rootlets of most of the grass had disappeared, but whether they had been eaten, or had rotted away in the damp peaty soil, I was unable to decide.

Of the larvæ, I found, on pulling the tuft to pieces, two about a quarter of an inch long, and one about half an inch, alive, and all three alike in colour and markings; there were also a dozen or more of dead larvæ varying from one-eighth to one-quarter of an inch in length. They had been living in little silken cases, constructed vertically amongst the grass in the dense tuft, about three inches above the roots, and outside these cases were little collections of frass adhering to them, evidently consisting of finely comminuted grassy particles. Many of these dwellings still held their small defunct tenants, but in some instances they were just outside of them.

After all the living shoots had been picked out and replanted, the tuft became reduced from its original diameter of five inches to no more than two inches; I now replaced the three living larvæ on the *Eriophorum*, and soon found them engaged in spinning fresh habitations for themselves; they began by uniting two or three blades together, and spinning beneath them a somewhat cylindrical case of greyish web, perpendicularly attached to the grass on which they fed. From the necessity of keeping the plant growing, I was unable to secure the larvæ from wandering for some few days, and during that time two of them escaped. On searching for them on May 21st, when the grass seemed dead, I found but one remaining; for this individual I provided a small piece of the root stock of *Aira cæspitosa*, having three or four blades sprouting from it, and after a day or two I had the satisfaction to find it had made a new case and was feeding; on the 28th, a fresh piece of *Aira cæspitosa* was supplied, and afterwards others at intervals of seven days up to the 21st of June, when I found it had spun itself up within the sheaths of the grass in

a neat little chamber, smoothly lined with white silk, and covered outside with particles of gnawed grass: though I had rudely torn it open, yet it set to work immediately to repair the damage, and by the next day had completed a cocoon of some toughness. The moth, a very fine one, appeared on the 22nd of July.

The egg of *pinetellus* is of elliptical shape, and under an ordinary pocket lens appears smooth; at first it is of a pale flesh colour, deepening in tint by degrees, and turning in eight days to blood-red, and in six days more to a dingy purple, just previous to hatching.

The newly hatched larva is of a drab colour, with a blackish head. In early spring it is very dark, but differs from the adult larva in size only.

My larva which reached full growth was five-eighths of an inch in length, moderately slender, cylindrical, almost uniform in size throughout; the skin, of a dingy reddish slate colour, was smooth but not shining; the head, the plates on the second and on the thirteenth segments, and all the tubercular spots, were jet black and very highly polished, each spot being furnished with a fine blackish hair; the spots on the third and fourth segments transversely oval in front and fusiform behind; on the other segments the anterior pairs of dorsal spots were squarish, and larger than the hinder pairs, which were somewhat transversely linear, the spiracles small, circular and black.

The pupa skin is about three-eighths of an inch in length, moderately stout, the wing-cases long in proportion; the skin smooth and polished, and of a cinnamon-brown colour.—WILLIAM BUCKLER, Emsworth: October 6th, 1873.

Mode of egg-laying of Agrion.—Mr. G. W. Dunn writes us that while collecting at Santa Cruz, California, he observed a species of *Agrion* (as we find the insect to be) “flying about the water united male and female. The female would light on a “spear of grass growing in the water, the male would then let go, and the female go “down the grass twelve or fifteen inches under the water and deposit her eggs.”—*Extracted from the ‘American Naturalist’ for 1873, p. 498.*

[This is additional confirmatory evidence (though none is needed) of a curious habit several times already recorded, but which I have never myself been so fortunate as to observe. Probably the earliest account of this habit is to be found in the published proceedings of the Entomological Society of London (Tr. Ent. Soc., Vol. i, proc. p. lxxxii) for the meeting held on the 7th December, 1835, when a paper was read by Mr. R. Patterson, of Belfast, under the title ‘Notes relative to the Natural History of the Dragon-fly.’ Mr. Patterson stated that Mr. B. J. Clarke, of Portarlington, had observed *Agrionidæ* coupled alighting upon aquatic plants, the male flying away and the female descending into the water, remaining there some time. This account seems to have been reproduced by Mr. Patterson in his ‘Natural History of the Insects mentioned by Shakespeare’ (1842), and is further alluded to by Evans in his ‘British Libellulinæ,’ and by Dr. Hagen in the ‘Revue des Odonates,’ p. 348 (foot-note). After Mr. Clarke, a similar habit was noticed by von Siebold in *Lestes*, and since then by several observers, one of the latest being Mr. Jenner Weir, as recorded in the Proc. Ent. Soc. 1871, p. xxxix.—R. McLACHLAN.]

Second note on the Trichoptera of Zetterstedt’s “Insecta Lapponica,” according to Wallengren’s determinations.—At p. 281 of vol. vii of this Magazine I gave notes

on some of the species described by Zetterstedt as determined by Pastor Wallengren from an examination of the types in the Museum at Lund. Since that time, he has sent me a MS. list of his determinations of the species of the families *Phryganeidæ* and *Limnophilidæ*. The publication of a second edition of my 'Trichoptera Britannica,' or a Supplement thereto, will be soon a matter of necessity, eight years having elapsed since that work appeared; but, as I have not yet decided which it is to be, the notes are published here as a help to workers. The species known to inhabit Britain are indicated by an asterisk.

1. *Phryganea phalænoides*. The Lapland specimens are *Holostomis atrata*, Gmelin the larger ones from Finland mentioned in the appended note are the true *H. phalænoides*, L.
2. *P. reticulata*, = *Neuronion lapponica*, Hag., as already determined.
3. *P. grandis*.* One specimen from Barrsele = *P. grandis*, L.; seven specimens from Lycksele = *P. striata*, L. These two species were universally confounded until Hagen, in 1851, pointed out the striking differences.
4. *P. varia*.* = *P. varia*, F.; but Wallengren states that the var. *b.* = *P. striata*.
5. *P. grisea*.* = *Limnophilus griseus*, L.
6. *P. rhombica*.* = *L. rhombicus*, L.
7. *P. borealis*.* I had long suspected that the insect known as *Limnophilus borealis* was not Zetterstedt's species, and it appeared to me that his description agreed far better with *L. pavidus*, Hagen. Wallengren states that Zetterstedt's types are *pavidus*. Hence a new name is necessary for our so-called *borealis*, and I propose that of *xanthodes*. I am not yet perfectly clear about the *borealis* of Kolenati and Brauer, though that of the latter is possibly *xanthodes*, and the former I think is Zetterstedt's species. The true *borealis* (*pavidus*) is a truly northern species; I have recently seen another British specimen, taken by Mr. Traill at Strathnaver in August of the present year.
8. *P. atomaria*.* = *L. marmoratus*, Curtis.
9. *P. signifer*.* = *L. elegans*, Curtis, as already determined.
10. *P. lineola*.* = *Grammotaulius nitidus*, Müller.
11. *P. irrorata*.* = *G. atomarius*, F.
12. *P. interrogationis*. Wallengren states that the ♀ type is perhaps only *G. atomarius*, but he is, however, inclined to consider it a good species, which the examination of a ♂ can alone determine.
13. *P. vitrata*.* = *Limnophilus lunatus*, Curtis.
14. *P. notata*.* = *L. affinis*, Curtis.
15. *P. fenestrata*.* = *L. auricula*, Curtis.
16. *P. vittata*.* = *L. vittatus*, F.
17. *P. femorata*, = *L. femorata*, Zett. At present unknown to me.
18. *P. trimaculata*, = *L. trimaculatus*, Zett.
19. *P. fuscinervis*, = *L. fuscinervis*, Zett.
20. *P. subpunctulata*, perhaps a pale *L. extricatus*, McLach., but Wallengren expresses himself uncertain about it.
21. *P. nigriceps*.* = *L. striola*, Kolenati; the former name is the older.
22. *P. lævis* is an *Anabolia* of the group of *A. nervosa*; hence this has been wrongly referred to *Agrypaia Pagetana*.

23. *P. testacea*. A *Stenophylax* which Wallengren leaves uncertain at present.
24. *P. pilosula*.* A collective name for *Limnophilus extricatus*, McLach., and *L. sparsus*, Curtis.
25. *P. brevis*,* = *Phacopteryx brevipennis*, Curtis.
26. *P. stigmatella*. An *Apatania*, and from the sketch of the appendages given by Wallengren, I think there is no doubt it is identical with *A. frigida*, McLach., which name must sink as a synonym. My types of the latter are from Alten in Norway.
27. *P. puberula*, = *Stenophylax picicornis*, Pictet.
28. *P. guttifera*,* = *S. stellatus*, Curtis.
29. *P. interpunctata*,* = *Halesus digitatus*, Schrank.
30. *P. concentrica*,* = *Stenophylax hieroglyphicus*, Stephens.
31. *P. fusca*,* = *Limnophilus fumigatus*, Germar; but the var. *b*, 'lapponica,' is an *Anabolia* of the same group as No. 22.
32. *P. discoidea*,* = *L. bipunctatus*, Curtis; but there is also a specimen of *L. affinis* among the types. The description appears to me to agree with *L. bipunctatus*.
33. *P. villosa*,* = *Chaetopteryx tuberculosa*, Pictet.

Many of these determinations had been previously correctly made by authors, from the descriptions. The nomenclature of only two British species is affected, viz.:—our so-called *Limnophilus borealis*, which was not known to Zetterstedt, and *L. striola*, Kolenati, which takes the prior name of *nigriceps*, Zett.

I express my thanks to Pastor Wallengren for his permission to make any use I thought proper of his notes.—R. McLACHLAN, Lewisham: 7th October, 1873.

Notes on a British bug.—I took pains to show (see p. 91) how the insects named *Oncotylus tanaceti* and *Macrocoleus sordidus* by Mr. Scott did not agree with the continental descriptions; and I stated my conviction that the two insects so named and described by Mr. Scott belonged to one and the same species. I think it would have been satisfactory if Mr. Scott had shown how his two species differ from one another, and explained how it was they did not agree with the continental descriptions. May I ask him to do this? Also, as he says the genera are so distinct to an experienced eye, may I ask him to express the differences between *Macrocoleus*, *Oncotylus* and *Tinicephalus*, so that unexperienced eyes may thereby profit?

As to Mr. Scott's remarks. The evidence I show that Mr. Scott has named specimens in our collections under two names, which are referable to the same species, is surely clear. He owns the label on the specimen in Mr. Douglas's box to be in his own handwriting (I must consider this fair presumptive evidence that he named it), and he owns his *tanaceti* to be my species from the *Ononis*, so that if my views are correct (and of course I speak from my own point of view), he has named the same species in our collections under two distinct names. Mr. Scott clings very firmly to Dr. Fieber's authority, yet, in 'British Hemiptera,' *Oncotylus pilosus* was described as new under his sanction, and subsequently proved to be *Macrocoleus solitarius*, notwithstanding the generic characters are so easily detected by an experienced eye. *Lopomorphus ferrugatus* (var.) was, under the same

guidance, also described as *L. carinatus*, which species belongs to another genus altogether. As to the hedge-bank at Mickleham, is it not possible that there may have been some *Ononis* on it? This is quite as likely to be the case as that *Tanacetum* is there. I have only now to remark that Dr. Scholtz's exponent of *hortulanus*, when I saw it, had one elytron, and was thereby quite recognizable; and that the existence of a row of punctures on the under-side of the thighs of his *tanacetii* can scarcely exclude it from Dr. Fieber's short diagnosis of the species, of which he says the thighs are largely punctured.—EDWARD SAUNDERS, Reigate: October, 1873.

Note on preserving insects in collections.—I have devised a method for preserving insects without the trouble of camphor. No *Psocus*, nor *Cheyletus eruditus*, nor other pest dares enter a box after I have treated it. Having a clean-papered box, I wash it with the common carbolic acid (disinfecting solution) with two-thirds water. It dries without any stain, and I find, after many months' trial, a perfect result. Sheets of card thus medicated give me all the small soft *Hemiptera*, &c., with antennæ, &c., not eaten by *Psocus*, as was formerly the case.—T. A. MARSHALL, The Grange, Lastingham, Pickering: October, 1873.

Obituary.

Georg Ritter von Frauenfeld.—This distinguished Austrian entomologist died at Vienna very recently; we believe from the result of a surgical operation. His writings were very voluminous on all subjects connected with Entomology and general Natural History, especially biology, and he was one of the Naturalists attached to the 'Novara' expedition. As secretary of the flourishing "Zoologisch-botanischen Gesellschaft in Wien" his loss will be severely felt, for his energy has raised that Society to a high degree of usefulness and prosperity.

J. J. Kaup—was inspector of the Grand Ducal Natural History Museum in Darmstadt. As an entomologist he is principally known by his Monograph of the Coleopterous family *Passalidæ*.

J. Rudolf Schiner.—Deyrolle's 'Petites Nouvelles' briefly records the death of this celebrated Austrian Dipterist, but we have no further particulars. His writings are very numerous, and in the hands of all students of *Diptera*, one of the most important being the Dipterous portion of the 'Fauna Austriaca,' worked out on the analytical method as in the other portions of the series (*e.g.*, *Coleoptera* by Redtenbacher, *Neuroptera* by Brauer, &c.).

[Familiar names in connection with entomology are rapidly becoming things of memory. Are they being replaced by those of younger students? The entomological horizon both here and on the continent is extremely hazy: for instance, what has become of the swarm of aspirants in Micro-Lepidopterology that appeared some 12 or 15 years since? It is poor encouragement if, after a road is cleared and made easy, there are no travellers to use it. It has been suggested that this is only the natural state of things after periods of severe political excitement, and we would fain hope the explanation is just. Judging from all we see, there is no lack of buyers of books on entomology. Do these only acquire the books on the same principle that most would-be entomologists place insects in their collections,—for show, and for the sake of mere possession?]

DESCRIPTION OF A SECOND SPECIES OF *APHANOCEPHALUS*,
WOLLASTON, FROM JAPAN.

BY E. C. RYE.

Subsequently to the publication (Ent. Mo. Mag., ix, p. 278) of the characters of the above curious genus, two examples have been detected among some beetles taken by Mr. George Lewis in Japan, evidently referable to a second species of it, and which I dedicate to the founder of the genus, as follows:—

APHANOCEPHALUS WOLLASTONI, *sp. n.*

Rotundatus, hemisphæricus, nitidus, levissime æneo-micans, supra valde convexus, glaber, suffusè ferrugineus, pedibus antennisque dilutioribus; prothorace crebre sat fortiter punctato, elytris punctis irregularibus, multo majoribus at minus concinnis necnon minus crebris, punctulis subtilissimis vix perspiciendis interspersis, obsitis.

Long. corp. $\frac{5}{8}$ lin.

Habitat "Hiogo" in insulâ "Nipon" japonicâ, sub foliis dejectis a Dom. G. Lewis repertus.

As far as external generic characters, this species appears to accord with the type, *A. hæmisphæricus*, Woll.; but its very much smaller size, lighter color, and stronger punctuation show a considerable range in the specific attributes of the genus. Apart from these, the only noticeable difference is that the prothorax is more transverse, with the anterior margin more decidedly truncate. The larger punctures on the elytra are coarse, for so small an insect, but they are not sharply defined.

Two specimens were taken in 1869 by Mr. G. Lewis, under leaves near Maiyasan Temple, Hiogo, Japan.

Parkfield, Putney: November, 1873.

ON NEW *COLEOPTERA* FROM JAPAN.

BY T. VERNON WOLLASTON, M.A., F.L.S.

The species enunciated in the present paper, one of which (*Phænocephalus castaneus*) I have treated as a new generic type, were obtained by Mr. G. Lewis in Japan; and it is at his request that I have examined them, in order that their citation in a general catalogue, on which he is engaged, might be rendered the more convenient.

FAM. CORYLOPHIDÆ.

Genus *PHÆNOCEPHALUS*, *nov. gen.*

Corpus rotundato-ovale, supra convexus, subtus deplanatum, calvum, politum, fere esculpturatum; prothorace transverso, postice elytrorum latitudine, angulis

posticis acutis sed haud productis, antice valde profunde emarginato, caput magnum latum conspicuum sed deflexum omnino recipiente; oculis magnis, distantibus; scutello distincto, triangulari; abdomine e segmentis 5 (longitudine sub-æqualibus) composito. Antennæ 11-articulatæ, articulo 1^{mo} crasso sub-quadrato, 2^{do} paulo longiore et paulo graciliore, subconico-cylindrico, 3^{tio} huic graciliore ac sensim brevior, obconico, 4^{to} brevi, 5^{to} huic paululum longiore, 6^{to}, 7^{mo} et 8^{vo} brevibus, latitudine vix crescentibus, reliquis clavam maximam elongatam laxam valde perfoliatam efficientibus (scilicet 9^{no} et 10^{mo} sub-æqualibus, illo obtriangulari, hâc sub-quadrato, 11^{mo} elongato-fusiformi basi truncato). Pedes breves, retractiles, antici ad basin contigui, postici sub-contigui, intermedii magis distantes.

A "phaino," monstro, et "cephale" caput.

The *primâ facie* aspect and outline of the minute insect for which I have proposed the present genus is very much that of a large *Corylophus*; nevertheless, the fact of its antennæ being composed of eleven joints (instead of only nine) will at once separate it from the members of that group. Indeed, in this particular respect, it agrees with *Sacium* (i. e., *Clypeaster*, olim) and *Microstagetus*; nevertheless, it is abundantly distinct from both of those genera in its prothorax being deeply excavated anteriorly (a character exceedingly unusual, and of great importance, in the family to which it belongs) for the reception of the head, which is consequently (although deflexed) completely exposed,—so exactly filling up the prothoracic cavity that the two together form somewhat less than the half-segment of a circle. It is true that in the comparatively diminutive and sericeous *Microstagetus* the head is *partially* visible, but then the prothorax is *not* at all hollowed out for its reception; whilst in *Sacium* it is entirely concealed, the pronotum being produced over it into a sub-pellucid roof-like projection. Hence I may state that, up to the present time, we have three genera of the *Corylophidæ* in which the antennæ are 11-articulate,—*Sacium*, *Microstagetus*, and *Phænocephalus*; four in which they are 10-jointed,—namely, *Arthrolips*, *Glæosoma* (= *Moronillus*, Duval), *Sericoderus* (= *Gryphinus*, Redt.), and *Aphanocephalus* (detected by Mr. Lewis in Japan); and two—namely, *Corylophus*, and *Orthoperus* (= *Pithopilus*, Heer, and *Microsphæra*, Redt.)—in which those organs have the number of their articulations reduced to nine.

PHÆNOCEPHALUS CASTANEUS, n. sp.

P. rotundato-ovalis, rufo-castaneus, in limbo (vix sub-pellucido) paululum dilutior, convexus, calvus, politus, fere esculpturatus,—punctulis perpaucis obsoletis (oculo fortiter armato), in elytris sub-longitudinaliter dispositis, obsitis; prothorace antice profunde emarginato, sed una cum capite (deflexo) fere sub-semicirculari; antennis (longiusculis) pedibusque testaceis.

Long. corp. lin. vix $\frac{3}{4}$.

FAM. CUCUJIDÆ.

Genus CRYPTAMORPHA.

Wollaston, Ins. Mad., 156 (1854).

CRYPTAMORPHA FASCIATA, *n. sp.*

C. angustula, sub-linearis, sub-depressa, pubescens, capite prothoraceque (sat grosse punctatis) rufo-ferrugineis, sed elytris (striato-punctatis) rufo-testaceis in fasciâ mediâ transversâ necnon ad apicem nigrescentibus; prothorace elongato-subquadrato, postice gradatim paulo angustiore, angulis vix productis sed ad latera crenato, basi trisinuato et anguste marginato; antennis rufo-ferrugineis, subtri-articulato-clavatis; pedibus rufo-testaceis.

Long. corp. lin. 1.

I feel almost certain that the unique specimen from which the above diagnosis has been compiled, and which would appear to have been taken by Mr. Lewis in *sugar* (and therefore, perhaps, to have been imported into Japan), must be looked upon as a comparatively minute member of my genus *Cryptamorpha*; for, although the antennæ are less gradually thickened towards their apex (the last *three* joints forming a kind of loose, ill-defined club, as in many of the *Silvani*), all the other details, so far as I am able to inspect them, seem to be in accordance with those of the *Cryptamorpha musæ*, which infests the Banana-stems in the Madeiran Archipelago, and which was found also by Mr. Melliss at St. Helena. Thus, not only are its outline and the laterally crenulated edges of its prothorax almost identical with those of *Cryptamorpha*, but likewise the fusiform termination of its maxillary palpi and the pentamerous structure of its feet (with their minute fourth joint) are on the exact pattern which obtains in that group, and essentially distinct from the corresponding ones of *Psammæchus*. And, moreover, in addition to all this, its very system of coloration is that of the *C. musæ*,—the entire surface being of a clear rufo-ferruginous, with a darker transverse fascia across the central region of the elytra.

FAM. CRYPTOPHAGIDÆ.

Genus LEUCOHIMATIUM, Rosenhauer, Die Thiere Andalus., 179 (1856).

There is a single example amongst Mr. Lewis's Japanese *Coleoptera* which I feel sure is a *Leucohimatium*; for, although its rufo-ferruginous hue and general aspect are quite those, at first sight, of a minute *Silvanus*, nevertheless, the *simple* (instead of bilobed) third joint of its feet, in conjunction with its rather shorter antennæ and thickly margined, posteriorly produced prothorax (the anterior angles of which are rounded off, and the sides minutely crenulated), shew it to belong to the former of those groups, rather than to the latter.

LEUCOHIMATIUM BREVE, *n. sp.*

L. elongato-ovatum, angustulum, rufo-ferrugineum, breviter subalbido-pubescent; capite prothoraceque opacis, coriaceo-alutaceis (nec punctatis), illo triangulari, oculis maximis prominentibus, hoc sub-quadrato, ad latera (minute crenulata) et postice (retrorsum producto) incrassato-marginato, angulis anticis rotundatis, posticis argute obtusis, postice in medio obsolete gibboso-carinato: elytris (pone medium gradatim sub-latio-ribus) leviter punctato-striatis, ad latera sub-grosse marginatis, et ad apicem obscure desilienti-terminatis.

Long. corp. lin. 1.

As compared with the European and Atlantic *L. elongatum*, the present species is very much smaller, as well as relatively shorter and less parallel (its outline being elongate-ovate, rather than linear); its surface is darker, or more ferruginous, and less densely covered with silvery pubescence; its eyes are more prominent; and its head and prothorax are alutaceous and opaque, instead of shining and punctured. The latter, moreover, which is free from the two basal foveæ, has the anterior angles (although rounded off) destitute of any appreciable thickening, and the sides (which are obsoletely crenulated) less straightened; and the central region behind is very obsoletely keeled. The elytra, also, which are considerably margined, are somewhat suddenly *desilient* at their apex.

FAM. MYCETOPHAGIDÆ.

Genus *TRIPHYLLUS*, Latreille, Règne Anim. v. 98 (1829).

Two examples of an insect now before me, which were taken by Mr. Lewis in Japan, are, I think, unquestionably *Triphylli*; though their general aspect and coloration are, at first sight, strongly suggestive of the European *Tetratoma ancora*. Nevertheless, they are in reality altogether distinct from the latter,—their 3-jointed club, added to the structure of their feet (the four hinder ones of which are quadri-articulate, while the front pair have but three joints), assigning them, apart from every other character, to the *Mycetophagidæ*. The species in question, which appears (judging from the diagnosis) to be totally distinct from the *T. bimaculatus* of Montrouzier, from New Caledonia, may be briefly characterized as follows:

TRIPHYLLUS LEWISIANUS, n. sp.

T. oblongus, sub-nitidus, pubescens, ubique profunde sed vix dense punctatus, rufo-testaceus; prothorace (transverso, convexo) in disco plus minus obscuriore, utrinque ad basin foveâ punctiformi impresso; elytris fasciâ mediâ transversâ sub-dentatâ nigrâ ornatis; antennis versus apicem gradatim paulo obscuratis.

Long. corp. lin. $1\frac{1}{3}$ — $1\frac{1}{2}$.

The pale rufo-testaceous hue of the present beautiful *Triphyllus*

(which I have much pleasure in naming after its discoverer), the prothoracic disc of which and a narrow, transverse, sub-dentate fascia across the middle of its elytra are more or less blackened, in conjunction with its strongly punctured and pubescent surface, will at once serve to distinguish it.

FAM. TELMATOPHILIDÆ.

Genus *THALLESTUS*, Wollaston, Trans. Ent. Soc. Lond., i. 153 (1862).

Three small and very distinct species, which were obtained by Mr. Lewis, appear to me to belong to my genus *Thallestus*, which infests the dead stems of the *Euphorbiæ* in the Canarian archipelago; or, at any rate, I am not able to detect any characters of sufficient importance to warrant their separation into a distinct group. Indeed, *Thallestus* itself is very closely related to *Diphyllus*, from which it seems mainly to differ in its prothorax having its edges much more obsoletely crenulated, and the *second* (or inner) costa obsolete. In both genera the antennal club is abrupt and biarticulate, the body pilose, and the structure of the feet nearly similar; but the Japanese species are on a smaller scale than the Atlantic ones.

THALLESTUS THROSCOIDES, n. sp.

T. elliptico-oblongus, ferrugineus, dense cinereo-pubescent; prothorace sat profunde punctato, lineâ sub-marginali a margine antice et postice sub-æqualiter remotâ; elytris striato-punctatis, concoloribus; antennis pedibusque infusate testaceis.

Long. corp. lin. circa $\frac{3}{4}$.

The rather less coarsely sculptured, *concolorous* surface, and comparatively pale, ferruginous hue, of the present *Thallestus* (in which respect, despite its very much smaller size, it approaches the Canarian *T. typhæoides* and *subellipticus*), will readily distinguish it from the two following members of the group.

THALLESTUS SUFFUSUS, n. sp.

T. oblongus, angustulus, piceo-niger, dense cinereo-pubescent; prothorace sat profunde punctato, lineâ sub-marginali a margine antice et postice sub-æqualiter remotâ; elytris striato-punctatis, plus minus (præsertim versus humeros et postice) obscure rufo-suffusis; antennis pedibusque infusate testaceis, femoribus tibiisque paulo obscurioribus.

Long. corp. lin. viz $\frac{3}{4}$.

This species is a trifle narrower and more parallel than either of the others, particularly the *T. rufopictus*; and its colour is quite as dark as that of the latter, with the rufescent portions of the elytra (towards the shoulders and apex) much duller and more suffused, and therefore much less defined. As in the *T. throscoides*, its pubescence is much shorter, and less erect, than that of the *rufopictus*.

THALLESTUS RUFOPICTUS, *n. sp.*

T. ellipticus, niger (aut *piceo-niger*), dense et longe cinereo-pubescent; prothorace profunde et dense punctato, lineâ sub-marginali postice versus marginem gradatim currente; elytris sub-convexis, profunde striato-punctatis, ad humeros plagâ magnâ obliquâ rufâ ornatis et postice gradatim ac plus minus obscure rufo-suffusis; antennis pedibusque infusate testaceis.

Long. corp. lin. circa 1.

The rather larger size, and more convex and elliptical outline, of this species, added to its longer pubescence and rather more deeply sculptured surface, and the clear, oblique, red dash with which either elytron is ornamented at the shoulder (the reddish *apical* portion being more or less suffused, and comparatively ill-defined), will abundantly distinguish it. Its sub-marginal prothoracic stria, also, is less strictly *parallel* with the edge of the prothorax, it gradually approaching the latter posteriorly.

(To be continued).

NOTES ON COLEOPTERA COMMON TO EUROPE AND JAPAN.

BY GEORGE LEWIS.

When the Memoirs now in hand on the Coleopterous Fauna of Japan are published, our knowledge of the species of Nipon (the name of the group of islands) will include nearly 2000; and, at a moderate computation, we may hope ultimately to see that number doubled. Of the 2000, there will be original descriptions of about 1500; and, pending the issue of the various publications, it may be of interest to note separately those species which are also cited in De Marseul's 'Catalogus Coleopterorum Europæ et Confinium.' In arranging this list, I have divided it into two sections; placing first those that are likely at times to be conveyed in merchandise, or to be dispersed through human agencies, and closing with such as have probably been diffused by more natural causes. An asterisk denotes those either certainly or by repute British (63 in number), and I have indicated, as far as data permit, the rarity or abundance of the species *when in Japan*, to show either that each has reached the limit of its range, or to suggest¹ that it may have come from thence westward. A † is affixed to species introduced either on the authority of single examples, or with doubts which it would require a longer series to remove.

The proportion of Phytophagous insects is remarkable; those of Necrophagous habits are ten in number; and the whole list extends to 82. There are evidences, as we should naturally anticipate, that

the number in all families will be largely augmented as the northern Island of Yesso is explored ; since it is from Hakodaté that the string of European *Harpali* proceeds ; and from thence, thanks to the researches of Russian entomologists, the species are easily traced westward by the Siberian route. Of the insects tabulated, there is little to be said beyond the mere record given, as any remarks on the geographical distribution of the species would extend this notice beyond present limits, and, indeed, force a recognition of the whole fauna of Japan and the adjacent continent. For instance, *Silpha littoralis*, L., is in profusion in all the islands, and is closely allied to *S. gracilis*, White, which is even more abundant ; but we have no record how far the latter extends westward, although it reaches India. Then, again, *S. thoracica*, L., has not been found in Japan ; but that it occurs from England to the extreme point of eastern Siberia is well known.

SECT. I.

- **Carpophilus hemipterus*, L.—Common in fruit ; all the islands.
- **Nitidula 4-pustulata*, F.—One example ; Nagasaki, 1867.
- **Omosita colon*, L.—Common in all the islands.
- * „ *discoidea*, F.— do.
- **Trogosita mauritanica*, L.—Common in rice “go-downs.”
- **Silvanus advena*, Walzl—One example ; 1868.
- **Lathridius filiformis*, Gyl.—Common in damp houses.
- **Myrmidius ovalis*, Beck—A single example ; Nagasaki.
- **Dermestes vulpinus*, F.—Common in all the islands.
- **Corynetes ruficollis*, Ol.— do.
- * „ *rufipes*, F.— do.
- **Gnathocerus cornutus*, F.—Common in rice “go-downs.”
- **Tribolium ferrugineum*, F.— do.
- **Alphitobius diaperinus*, Panz.— do.
- **Hypophlæus depressus*, F.— do.
- **Nacerdes melanura*, L.—Rare ; Hiogo and Nagasaki ; two examples.
- **Sitophilus granarius*, L.—Common in rice “go-downs.”

SECT. II.

- **Nebria livida*, L.—Common at Hiogo in sandy districts.
- **Carabus granulatus*, L.—A single specimen, from Hakodaté, in the British Museum, differs from the ordinary type, but agrees with the Siberian forms of the species.
- **Lebia crux-minor*, L.—Rare ; always at considerable altitudes.
- Anisodactylus signatus*, Ill.—Common in all the islands.
- **Harpalus ruficornis*, F.— do.
- * „ *griseus*, Panz.—Common at Hiogo, and sandy districts northward.
- „ *fuliginosus*, Duft.—Hakodaté.
- „ *lævicollis*, Duft.— do.
- „ *zabroides*, Dej.— do.

- Stenolophus proximus*, Dej.—Common in all the islands.
- **Pterostichus lepidus*, F.—Hakodaté.
- Dolichus flavicornis*, F.—Common in all the islands.
- Orthotrichus cypindoides*, Dej.—A single example; Osaka, 1868.
- Anchomenus impressus*, Panz.—Hakodaté.
- * „ *4-punctatus*, Dej.— do.
- **Bembidium lunatum*, Duft.—Common in all the islands.
- **Eunectes sticticus*, L.— do.
- **Laccobius minutus*, L.— do.
- **Leucoparyphus silphoides*, L.—Rare; three or four examples; Nagasaki.
- **Quedius dilatatus*, F.†—One example; Hakodaté.
- * „ *lateralis*, Grav.†— do. do.
- **Philonthus quisquiliarius*, Gyl.—Not rare; all the islands.
- **Micropeplus fulvus*, Er.†—Common in all the islands.
- **Silpha littoralis*, L.— do.
- * „ *rugosa*, L.—Common in sandy districts.
- * „ *dispar*, Herbst— do.
- **Hister cadaverinus*, Hfm.—Common in all the islands.
- * „ *navus*, Mars.— do.
- * „ *14-striatus*, Gyl.— do.
- **Carcinops pumilio*, Er.—Rare; three examples; Nagasaki.
- **Saprinus nitidulus*, Payk.—Common, but only in sandy districts.
- * „ *rotundatus*, Illig.—One example.
- **Acritus minutus*, Herbst†—One example; Nagasaki.
- **Olibrus piceus*, Steph.†—Two examples; Nagasaki.
- Meligethes hebes*, Heer—Rare on the mountains.
- **Cryptarcha strigata*, F.—Common in Kiushiu with *Cossus*.
- **Silvanus bidentatus*, F.—Very common, always under bark of pines.
- Holoparamesus Kunzæi*, Aubé—Three examples; Nagasaki.
- **Monotoma picipes*, Herbst—Common in all the islands.
- * „ *4-foveolata*, Aubé— do.
- **Typhæa fumata*, L.—Two examples; Nagasaki.
- **Malachius bipustulatus*, L.—One example; Nagasaki, 1866.
- **Corynetes cæruleus*, De G.—Common at Osaka.
- Cantharis Pallasi*, Gebl.—Awajima (Dr. Adams).
- **Tanysphyrus lemnae*, Payk.—Common in Kiushiu.
- **Blastophagus piniperda*, F.—Rare; three examples; Nagasaki, 1868.
- Spondylis buprestoides*, L.—Common in all the islands.
- Crioccephalus rusticus*, L.—Seen once in profusion in Maiyasama, alt. 1500 feet.
- **Gracilia pygmaea*, F.—Single examples from Hakodaté, Yokohama, and Hiogo.
- **Lema puncticollis*, Curt.—Two examples; Nagasaki, 1865.
- „ *flavipes*, Suff.—Three examples; Nagasaki, 1866.
- Crioceris 14-punctata*, Scop.—Common on Tsusima (Mr. Bowring).
- **Clythra leviuscula*, Ratz.—Two examples at Hiogo, off oak.
- „ *aurita*, L.—Common on *Lepedeza Sieboldi*, Neeg.
- **Timarcha tenebricosa*, F.—One example in British Museum collection from Hakodaté.
- Chrysomela aurichalcea*, Gebl.—Common in all the islands.

- * *Lina aenea*, L.—Common at Hakodaté and Yokohama.
 „ *20-punctata*, Scop.—Common in all the islands.
 * „ *populi*, L.— do., on the mountain sallow.
 * *Gonioctena rufipes*, De G.—Hakodaté ; occurs also in America.
 * *Phyllotreta undulata*, Steph.—Common in all the islands.
 * *Balanomorpha rustica*, L.—A single example ; Nagasaki.
Ancylopus melanocephalus, Costa—Common in all the islands.
 * *Coccinella 7-punctata*, L.— do.
 * *Chilocorus renipustulatus*, Scriba— do.

13, The Lees, Folkestone : December, 1873.

DESCRIPTIONS OF THREE NEW SPECIES OF SCARABÆIDÆ FROM AUSTRALIA AND JAPAN.

BY CHAS. O. WATERHOUSE.

TEMNOPECTRON LÆVE, *sp. nov.*

Ovatum, convexum, nigrum, sub-piceo micans, sub-nitidum. Capite sub-plano ; fronte leviter convexo subtilissime punctulato ; clypeo subtiliter et crebre punctulato ; margine antico in medio bidentato. Thorace subtiliter et crebre punctulato, longitudine duplo latiori, sat convexo, antice leviter angustato ; margine antico emarginato, postico leviter biarcuato, lateribus ante medium subito oblique angustatis ; angulis anticis rectis, posticis sub-rotundatis. Elytris convexis, lævibus, longitudine paulo latioribus, lateribus rotundatis ; singulis lævissime sex-striatis, striis vix conspicuis. Ore, antennis, thorace antice subtus (utrinque excavato), pedibusque piceis.

Long. 4½ lin., lat. 3½ lin.

Hab. : Queensland. Coll. Brit. Mus.

This species may at once be distinguished from *T. rotundatum* by its rather shorter and broader form, and by the almost entire absence of striæ on the elytra.

The following species somewhat resembles *Epilissus*, but I think is better associated with *Temnoplectron*.

TEMNOPECTRON PARVULUM, *sp. nov.*

Elongatum, sub-ovatum, piceum, nitidum. Capite magno, leviter convexo, sub-rotundato, subtilissime et crebre punctulato ; margine antico depresso, in medio bidenticulato atque inter denticulos emarginato. Thorace crebre et distincte punctato, longitudine duplo latiori, sat convexo, antice angustato, margine antico leviter emarginato, postico rotundato, lateribus ad angulos anticos subito oblique angustatis ; angulis anticis rectis, posticis obtusis. Elytris sat convexis, lævibus, longitudine non brevioribus ; infra humeros latioribus, dein ad apicem arcuatim angustatis ; singulis tenuissime septem-striatis. Tibiis compressis, arcuatis ; tarsis compressis. Antennarum clava nigro-fusca.

Long. 2½ mill., lat. 1½ mill.

Hab. : S. Japan. Coll. Brit. Mus. and G. Lewis.

The second specimen brought by Mr. Lewis only measures two millimètres in length.

MENTHOPHILUS TUBERCULATUS, sp. nov.

Latus, convexus, sub-opacus, fuliginæus. Capite fortiter sat dense punctato; margine antico in medio deflexo et leviter emarginato, utrinque obtuse tridenticulato; fronte leviter convexo. Thorace fortiter et sat dense punctato, punctis piliferis, et capite et longitudine suâ duplo latiori, convexo, antice in medio linea longitudinali elevata nitida, posticeque utrinque tuberculis duobus nitidis; margine antico emarginato, postico fere recto (vix rotundato); lateribus paulo explanatis (marginibus serratis, piliferis, setiferis) ante medium oblique angustatis et leviter emarginatis, a medio ad angulos posticos paulo rotundato-angustatis; angulis anticis rectis, posticis retrorsis et rectis. Elytris convexis, longitudine paulo latioribus, thorace vix angustioribus, lateribus rotundatis, ad apicem deflexis; sutura costata et obsolete nodosa, nodulis punctatis; singulis septem-striatis, striis duplicibus et distanter punctatis; interstitiis sub-planis, opacis, impunctatis, 1^o, 3^o, 5^{to} sextoque 9- vel 11-nodulosis, nodulis parvis et fortiter punctatis, interstitiis 2 et 4 fortiter septem-nodosis, nodis postice fortiter punctatis et setiferis. Corpore subtus pedibusque quatuor posticis fortiter punctatis. Tibiis anticis ad apicem truncatis et incurvatis, extus fortiter tridentatis; posticis fere rectis.

Long. 4½ lin., lat. 3¼ lin.

Hab.: "New Holland." Coll. Brit. Mus.

British Museum: November 15th, 1873.

DESCRIPTION OF A SECOND SPECIES OF *CATHORMIOCERUS*
FROM GREAT BRITAIN.

BY E. C. RYE.

CATHORMIOCERUS MARITIMUS (Moncreaff, MS.), *sp. n.*

(Group 1; Seidlitz.)

Corpore elytrisque opaco-squamosis, thoracis basi fortius angustata, lateribus fortissime ante medium rotundato-ampliatis; scrobe irregulari, curvata, sub-foveiformi, nitida, oculum attingenti; elytris nigro-setosis, in nuper exclusis concinne tessellatis.

Long. 3½—4 mm. (lin. anglic. 1½—1⅞).

♂. *Paulo major, scapo ad basin ipsam constricto, inde abruptim valde dilatato, oblique quasi angulatim extus curvato, angulis basalibus (scilicet supra basin constrictam) prominentibus; funiculo crassiore.*

♀. *Antennis paulo minus incrassatis, scapo æque dilatato necnon curvato, sed angulis basalibus minus prominulis.*

Habitat Angliam meridionalem, in insulâ "Portsea" sub muscis graminibusque prope salinam à Dom. Moncreaff rariùs inventus.

The characters of this insect have long ago been pointed out by me (Ent. Mo. Mag., vii, p. 150), and I now describe it, adopting the

name given to it by its original (and only) captor, as Dr. Seidlitz, of Dorpat, to whom I have recently communicated it with my unique ♂ of *C. socius* from the Isle of Wight, corroborates my opinion that it is a perfectly good and new species. Dr. Seidlitz also informs me that the insect has never been sent to him by Mr. Crotch for examination; and that my *C. socius* entirely agrees with his own ♂ type. It is curious, that not only the first known *Cathormiocerus* should have come from England (especially as this locality has been doubted by almost every one), but that a *second* species, of still more curious structure, should be found so far north; the metropolis of the genus being apparently on the shores of the Mediterranean.

Compared with *C. socius* (the only species to which it can be likened, owing to the formation of its antennary furrows, except *C. cordicollis*, from which it is at once removed by the shape of its thorax and of the scape of its antennæ), *C. maritimus* is, as a whole, more robustly built, flatter, darker, and much more strongly punctured; and it differs from that species in detail as follows:—the head is wider, with the vertex dark, coarsely granulated, set with stout dark setæ, and lighter at the sides; the eyes are more prominent; the rostrum (viewed sideways) is deeper, and its median impressed line is not so evident; the antennary furrows, viewed from the front, are not so open or pit-like; viewed laterally, they are more regular, rounded on the upper and angulated on the lower edges, and reaching up to the eye itself, the whole furrow being smooth and shining; the scape of the antennæ is set with stouter setæ and more evidently granulated, comparatively shorter, very much stouter, less abruptly angulated at the base immediately above the constricted portion (which is rather less abrupt) on the side next the eye, but more angulated on the outer side; the funiculus and club are (comparing the same sexes) very distinctly broader and shorter: the thorax is not so transverse, but more strongly rounded outwardly at the sides just before the middle, and more contracted at the base; its punctuation is much coarser and more evident; the light coloured patch of scales at the sides is much wider and less defined on its lower side, covering the whole lower portion of the thorax except a small dark patch, instead of forming a sharp light side line; and there is no medial lighter line on the disc, which is more depressed: the elytra are flatter, more abruptly declivous behind, less ovate in outline, the shoulders being less sloped off and the sides a little straighter; the punctuation of the striæ is much coarser and more conspicuous, the setæ on the interstices are black, and not so stout or quite so long,

and in quite fresh examples, owing to the darker ground colour, the tessellation of the lighter patches of scales is much more conspicuous: the legs are darker, having the knees and the outer edge of the tibiæ more or less pitchy, and the apex of the tibiæ (especially of the hinder legs) seems scarcely so enlarged as in *socius*.

Having seen a few more specimens than those mentioned by me, *l. c.*, I am enabled somewhat to amend my former account of the characters of the insect, especially with regard to the clothing of scales; but I can find no sexual differences beyond those above mentioned. These differences seem very obscure in the genus. Dr. Seidlitz, from examining my insects, comes to the conclusion that his own ♀ *socius* with thin scape is to be ascribed to a new species, and that *socius*, as in *maritimus*, has a thick scape in both sexes. This, however, should be easily ascertained, since *C. socius* is recorded in Berl. Ent. Zeitschr., 1868 (Beih.), p. 133, as taken by Kiesenwetter in some plenty on the Sierra Nevada, "so dass über die Zusammengehörigkeit der beiden Geschlechter kein Zweifel ist."

Mr. Moncreaff informs me that he only finds *C. maritimus* on a low bank near a salt marsh, to a few square yards of which it appears confined. He has worked hard to find its larvæ, but hitherto without success.

Parkfield, Putney, S.W. : 11th December, 1873.

Unusually late appearance of Cetonia aurata.—On the 15th of October last, whilst a son and daughter of Dr. King, of Blackheath, were strolling about on that place, their attention was drawn to an insect which flew past them, and alighted on the palings; they went to the place, and the young lady secured a specimen of the above-named insect, which is now in my possession, and alive at the time I write this. Can any one record a similar fact, or give an idea of what caused such an untimely flight?—JOHN SCOTT, 37, Manor Park, Lee, S.E. : December 17th, 1873.

Collecting at Forres.—I spent a few days at the end of last August at Forres, in the north of Morayshire, not far from the once famous Fochabers. The season appears to have been unusually bad there, and *Lepidoptera* were exceedingly scarce. Sugaring produced nothing but *Epunda nigra*, and a few commoner species. *Agrotis agathina*, one of the "plums" of the locality, was very difficult to meet with; and, even when seen, by no means easy of capture. I took, however, a few, in faultless condition; and a more beautiful insect, when fresh, cannot be conceived. The larvæ of *Heliothis marginata* were pretty common on *Ononis*, along the shingly banks of the Findhorn. By a long course of beating in the woods round Forres, where birches particularly abound, I gathered together a considerable family of larvæ including *Demas coryli* (not uncommon), *Notodonta dromedarius*, *Abrostola urticae*,

and some hundreds of various *Geometræ*. *Polia chi* was beginning to appear when I left; and *Hydræcia nictitans* and *Chareas graminis* were out upon ragwort and thistle at the Culben sands. *Stilbia anomala* flew in some numbers along the hedge rows at night, and *Cidaria testata* swarmed everywhere.

Meagre as these results were, I found the pursuit of entomology at Forres exceedingly enjoyable; and am bound to lay the paucity of my captures upon the bad season. The country is most richly and variously wooded; and affords, in any ordinary year, excellent sport both in day work and sugaring. The climate is dry and mild, peaches, figs, and grapes being grown in the open air; and I was surprised to hear of many insects, commonly considered essentially southern, having occurred there. My friend, Mr. Geo. Norman, who has widely explored the neighbourhood during a stay of some years, pointed out to me several localities made sacred by the occurrence of notable *Noctuæ*—they being the main object of his study.

The Hydropathic Establishment at Forres affords very comfortable quarters, and is surrounded by woods (through which paths and roads wind, making a total extent of five miles), which no sugarer could behold without sanguine expectations. The house is very conveniently built; and its liberal regulations in no way impede the prolongation of an entomologist's expeditions to the small hours.—J. B. BLACKBURN, Southfields, Wandsworth: November, 1873.

Lepidoptera in North Wales.—Two or three days at Aberystwith, Machynlleth, Dolgelley and Bala produced the following, none of which, as far as my researches have extended, have been previously recorded from North Wales.

Pieris napi; Aberystwith and Dolgelley. *Anthocharis cardamines* and *Chortobius Pamphilus*; Dolgelley. *Hepialus lupulinus*; Machynlleth. *Venilia maculata*; Dolgelley and Bala. *Eurymene dolobraria*, *Odontopera bidentata*, *Iodes lactearia*, *Asthena luteata* (among alder), *candidata* and *sylvata*, *Eupisteria heparata* (among alder), at Dolgelley, in company with *Asthena luteata*; the general appearance when flying of these two species is very similar, but in the net the *Asthena* rests with expanded, the *Eupisteria* with erected wings. *Acidalia remutata*; Machynlleth and Dolgelley. *Cabera pusaria*, *Corycia temerata*, *Panagra petraria*, *Numeria pulveraria*, *Ligdia adustata*; Dolgelley. *Lomaspilis marginata*; Aberystwith. *Larentia pectinitaria*; Dolgelley. *Emmelesia albulata*; Dolgelley and Aberystwith. *Eupithecia castigata*; Dolgelley. *Eupithecia vulgata*; Bala. *Melanthia ocellata*, *Melanippe tristata*, *Cidaria corylata*, *Eubolia palumbaria*, *Platypteryx lucertula*, *Cilix spinula*; Dolgelley and Bala. *Xylophasia rurea*; Bala. *Botys hyalinialis* and *fuscalis*; Dolgelley. *Scoparia ambigua* and *Crambus pratellus*; Dolgelley and Machynlleth. *Melanippe hastata*, which has been previously recorded from Ruthin, was common enough among birch at Dolgelley, flying after two p.m.

At the same place, I was a good deal surprised at taking two specimens of *Emmelesia blandata*; one while mothing in a wood of mixed growth on June 5th, and the other in the same wood next day, flying slowly along a heathery path. This species has now been recorded from the Isle of Wight, Worcestershire, Yorkshire, and the Lake District, although further confirmation of all these localities, except the last, seems desirable; in Wales it has occurred, as above stated, in Merionethshire, and is included in a list from Glamorganshire sent me by Mr.

Newman; in Ireland Mr. Barrett has taken it in Galway, and "Dr. Wallace at Killarney;" while in Scotland—Rannoch, Loch Long, Loch Goilhead, Ben Nevis, Kilmun, Skye, and Ross-shire are recorded localities.—H. JENNER-FUST, Jun., Hill Court, Falfield, Gloucester: *November, 1873.*

Lepidoptera of Ireland (Notodonta bicolora).—In justice to the memory of a hard-working and honest collector, whose statements were never before doubted, I cannot allow Mr. Birchall's List of the *Lepidoptera* of Ireland (published in last month's Entomologist's Monthly Magazine) which he states have been erroneously recorded, and which includes *Notodonta bicolora*, to go forth without protesting against *excluding* that species; for, when I was at Killarney in the summer of 1871, I purposely made enquiry, and found where Mr. P. Bouchard had lived, and met with a man who saw one of the specimens he took *alive* in his box just after he had captured it, and the tree on which it was found was pointed out to me. I do not think because *others* have been there and *not* found it, there should be any reason to doubt the word of a man who I have every reason to believe never once attempted to pass off Foreign for British specimens. Dr. Gill has the diary of the late Mr. Bouchard, with the dates of captures of the seven or eight specimens he took over three or four seasons' collecting. I should myself like to stay six weeks there at the proper time, if there were accommodation to be obtained in the neighbourhood, but it is five or six miles from Muckross, and no lodgings of any decent kind are to be had nearer; and the distance and fatigue of working the ground, which is very boggy and irregular, would be more, I think, than my strength would permit.—SAMUEL STEVENS, 28, King Street, Covent Garden: *December, 1873.*

A few additions to the recorded captures of Lepidoptera in the Isle of Sheppy.—During the past season some few species have occurred to me in the island that I believe have not hitherto been recorded from thence. *Sesia myopiformis*; pupæ in apple branches; imago on flowers, fences, &c. *Calamia phragmitidis*; one specimen among *Arundo phragmites*, on the cliffs. *Scotosia dubitata*, *Cerigo Cytherea*, *Agrotis puta* and *tritici*, *Noctua plecta* and *rubi*, and one fine *Heliothis dipsacea*, at sugar. On the evening of the 1st of July, while mothing near Sheerness, I was fortunate enough to take a rather worn specimen of *Geometra smaragdaria*, which had settled on a grass stem. Last season, a beautifully fresh fore-wing of the moth was picked up in the dockyard by my friend, Mr. J. J. Walker; and the occurrence of the insect again this year would lead one to hope that in future years further examples of the "Essex Emerald" may be met with on this side of the water. To take another rarity was still in store for me. On the night of the 24th of August, two very fine *Leucania albipuncta*, which visited some thistle-heads previously sugared, were captured, and form a very good addition to my collection. Besides the above-named species, *Eupithecia subumbrata*, *Acidalia emutaria*, *Acentropus niveus*, *Homæsona sinuella*, *Agdistis Bennetii*, pupæ of *Nonagria typhæ*, and larvæ of *Bombyx castrensis* and *Acronycta tridens* were met with pretty frequently. None of the females of *Acentropus niveus* that I took were apterous, or at all approaching to that state. *Spilodes palealis* was also disturbed more numerously than usual in this locality, among growths of *Daucus carota*.—A. HODGSON, 223, High Street, Mile Town, Sheerness: *December, 1873.*

Note on Sesia apiformis.—During the last three years I have bred some numbers of *S. apiformis* from pupæ found by digging. I have been interested in watching their struggles in emerging, and have observed some peculiarities in form and habit which seem to assist them.

The back of the abdomen of the pupa has transverse rows of little spikes or teeth, making the segments look like the joints of an *Equisetum*; there is one row on each of the three last segments, two on the others. Another peculiarity is that the cases of the antennæ are prolonged and meet, forming a sharp chisel-shaped point, standing just over the black patch between the eyes of the inclosed imago. There are also two little points below this, standing over the bases of the palpi.

Now, as to the habits of the insect. I kept some pupæ in a tin box under my sofa, and distinctly heard them making a sort of scraping noise three or four days before any came out. I cut a hole in one of the cocoons to see what the insect was doing; when it recovered from the disturbance, it began turning slowly round, first in one direction, then in the other, and all the time keeping its head jammed up against the top of the case. The rows of spikes on the abdomen, joined with the very great extensibility of the segments, obviously help it to do this; and their position, on the *back* only, will cause the front of the head, on which are the three spikes already mentioned, to be pressed against the pupa-case. When the case ultimately gives way, it does so in a remarkable manner; a small cap comes off the top, either entirely, or remaining attached by only a small hinge. This is not a natural way for the pupa-case to break from a simple 'shove' from within; and the line of fracture coincides with the line in which I believe the cocoon is rubbed. Hence I believe that we have here modifications of form and habit specially adapted to enable the insect to escape more easily from its winter prison.

There is one point in which I am disappointed—I cannot detect with any certainty the signs of cutting in the fracture; but, on the other hand, I find that if I rub a piece of a cocoon with a pin's-head and then break it, it gives way along the rubbed line. I should much like to have the opinion of any one who has observed this insect, whether my explanation is correct.

With respect to the moth, there are several little habits which I have not seen noticed, and which add much to the striking resemblance it bears to a large wasp or hornet. If disturbed when at rest on a wall or window, instead of starting off as most insects do, it drops, and then flies away along the ground; the buzz made when flying forms another point of resemblance, and also it has that peculiar trick of moving the body up and down, which always (to my mind) suggests stinging.

Altogether, I should think it was hardly possible to have a more complete case of mimicry.—W. C. MARSHALL, 8, Spa Buildings, Cheltenham: *October, 1873.*

Variety of Noctua glareosa.—Amongst some Lepidopterous insects sent to me for names by Mr. Joseph Jackson, of Barnsley, is a very remarkable variety of *Noctua glareosa*. The fore-wings, instead of being of the usual pale pinkish-grey colour, are a rich chocolate-brown, which brings the paler markings out very distinctly; the hind-wings, also, are very much darker than in ordinary specimens. It is a beautiful specimen, and quite unlike any I have ever before seen.—GEO. T. PORRITT, Huddersfield: *December 2nd, 1873.*

Natural History of Mimaseoptilus aridus.—On 25th April, 1873, Mr. Stainton kindly forwarded to me some shoots and flower buds of *Coris monspeliensis*, with some little larvæ feeding on them; they had been sent from Mentone by Mr. J. T. Moggridge, under the idea that they might belong to some species of the *Tineina*, but Mr. Stainton saw at once they should rather be referred to the *Pterophorina*, and fortunately I have been able to prove the correctness of his view. I bred but one moth, and that probably somewhat dwarfed in size, but there seems no doubt it is *M. aridus*, Zeller, a species of which the transformations have hitherto been unknown.

Perhaps I ought to say that *Coris monspeliensis* is one of the *Primulaceæ*, a low-growing plant, having its small lilac flowers in their brown-toothed green calyces in short spikes or racemes at the end of its stalks; and that I received on May 7th, one of these spikes in bloom to supplement the exhausted previous food.

It seems that the young larvæ at first feed in the stems of the young shoots of the plant, the heads of which then hang down and become bleached; as they grow, they enter the flower buds, feeding on the calyx and its contents; at this time the only sign of the presence of a larva consists of a hole in the lower part of the calyx, and two or three minute grains of frass just visible within the cavity.

As the larvæ advanced further towards maturity, their assimilation to the flower buds, in point of colour, was very close; and I often noticed them outside, either among the flower buds, or on the stems of the plant.

Soon after this stage, perhaps from the limited stock of food, I found the larvæ not very particular as to the parts they fed on, for they devoured not only the calyces entire, excepting the teeth, but also the leaves. The most forward individual pupated on the 6th May, and two others on the 11th and 13th; the moth from the first appeared on June 12th, but the other two pupæ eventually dried up.

The youngest larvæ, when first I detected them, were about two lines long, of a deep purplish-pink colour, slightly subdued by a greenish tinge; the skin much covered with exceedingly minute, short, bristly points; the wart-like tubercles on the back bore each a single white bristle, rather long, and a trifle thickened at the tip; the small head greenish, and marked on each lobe with dark brown, and studded with white hairs; dorsal and sub-dorsal lines of darker purplish-pink than the ground colour could also be seen.

The maximum size attained was little more than four lines in length, the figure being rather slender in proportion, cylindrical above and a little flattened on the belly, tapering in front from the third segment to the head, which was small; the three hinder segments also a little tapering; all the legs tolerably well developed; the segments plump, with divisions deeply indented, and the sub-dividing wrinkles well defined; the colour greenish, suffused with pink; the inflated spiracular region a little paler than the rest, no trace of any lines; the head brown; the spiracles dark brown, circular, and very small; all the hairs brownish.

The slender pupa was four lines in length, smooth and without hairs, with the head blunt and broad, but the broadest part being at the top of the thorax, just at the junction of the wing-cases, from whence it gradually tapered to the point of the tail, by which it was attached to the stem of its food-plant; in colour the body was pale yellowish-green, the head ochreous-green, the wing-cases of a darker greyish-green, tinged with pink; a faint darker green dorsal line was just visible, and along either side a row of sub-dorsal, elongate, black spots.—WILLIAM BUCKLER, Esq.: *October 28th, 1873.*

Some entomological errors in Cryptogamic Botany.—The Rev. M. J. Berkeley has kindly furnished me with the following notes:—

1. The pedunculate eggs of *Chrysopa* are figured and described by Corda in Sturm's Deutschlands Flora, vol. iii, p. 59, tab. 30, as a fungus, under the name *Crateromyces caudatus*, and the figure is reproduced (in miniature) in the Anleitung zum Studium der Mycologie, tab. C.
2. The cottony filaments of *Adelges Dayi* (Aphidæ) have been described by Fries as *Psilonia nivea*.
3. The eggs of *Rhipignathus* (a genus of Acari) form the genus *Atractobolus* of Fries.

—R. McLACHLAN, Lewisham: 13th December, 1873.

Rejoinder to the "Notes on a British bug."—I regret very much to be compelled to deny, for the second time, the charges brought against me by Mr. Saunders, viz., that I have named specimens (of one insect) in our collections under two names, and that the two insects named and described by me belong to one and the same species. Neither of these statements is correct; and, had Mr. Saunders applied to me for a sight of the species I described, if he could not understand my descriptions or make the species so described agree with those of the authors whose works it is to be presumed he possesses, he would, as on former occasions, have found them at his service. Next, because I have accepted Fieber's opinion in preference to either that of Meyer-Dür or Mr. Saunders, he steams away into other waters to show that Fieber was not infallible. Is Mr. Saunders infallible, may I ask? To the instances he cites of the great errors committed by that author, he might have added that they were pointed out by myself to him some years ago; and one of them, viz., that of *Lopus carinatus*, was so named for me by Dr. Bärensprung. It is a pity that this Magazine should be occupied with matters which might have been so easily settled elsewhere.—JOHN SCOTT, 37, Manor Park, Lee: December, 1873.

[This correspondence must now cease.—EDS.]

Obituary.

Charles Campbell.—We are requested to notice that this well-known Manchester entomologist died on the 3rd December last. For many years he was Secretary of the Manchester Entomological Society.

ENTOMOLOGICAL SOCIETY OF LONDON, 17th November, 1873.—Prof. WESTWOOD, President, in the Chair.

C. W. Dale, Esq., of Glanvilles' Wootton, Sherborne, was elected a Member.

Mr. Higgins exhibited two bred examples of *Deilephila euphorbiae* (one a remarkable variety), and a *Sphinx pinastri*, which he was assured all came from the vicinity of Harwich, in June, 1872.

Mr. Stevens exhibited a curious variety of *Arge Galathea*, *Leucania l-album*, and *Cerastis erythrocephala*, said to have been captured by Mr. Parry near Canterbury, and an *Acontia solaris* said to have come from Dover.

Mr. Champion exhibited the bred example of *Pachnobia alpina* from Braemar recorded in our No. for September, ante p. 88; also *Harpalus 4-punctatus*, Dej., from Braemar; *Anisotoma macropus*, Rye, from Claremont; *A. pallens*, Germ., from Deal; *Liosomus troglodytes*, Rye, from Farnham; and *L. oblongulus*, Boh. from Caterham.

Mr. W. C. Boyd exhibited living larvæ of *Brachycentrus subnubilus* reared from the egg. These evidently fed upon *Confervæ*, and the cases constructed by them were clearly quadrangular (though the angles were not prominent) and very diaphanous, so that the movements of the larvæ could be discerned within.

Mr. Müller exhibited galls of *Biorhiza aptera* on roots of Deodar, being the first known instance of this insect attacking a coniferous tree.

Mr. Boud exhibited very fine examples of *Chilo giantellus* from Horning Fen.

Mr. Vaughan exhibited examples of *Phycis Davisellus* bred from larvæ feeding in a web upon shoots of *Ulex* (cf. Mr. Buckler's description of the larva, *ante* p. 89).

Papers by Mr. Mansell Weale and Mr. Roland Trimen, on the habits and variations of *Papilio Merope* were read. Mr. Weale had reared from eggs, apparently the produce of *P. Merope* and *P. Cenea*, two *P. Merope* (typical form) males, one *P. Hippocoon* ♀, and *P. Trophonius* ♀. In Madagascar, it was well known that the ♀ of *Merope* was like the ♂, but no typical ♀ was known from South Africa, whereas the, in appearance, widely different *Hippocoon*, *Trophonius*, and *Cenea* were now considered as proved to be the forms of the ♀ there represented.

Mr. Miskin, of Brisbane, contributed notes on *Mynes Guerini*, and its variations; he thought it was only a form of *M. Geoffroyi* from the Malayan Islands.

It was announced that the Linnean Society had granted permission for the meetings to be held in its new rooms for the present session, and that negotiations for separate rooms were in progress.

1st December, 1873.—H. T. STANTON, Esq., Vice-President, in the Chair.

Mr. F. Newell Arber, of Islip, Northamptonshire, was elected a Member.

Mr. John George Marsh, of 842, Old Kent Road, was elected a Subscriber.

Mr. Bond exhibited a hybrid between *Clostera curtula* and *C. reclusa*, partaking of the characters of both parents.

Mr. Jenner-Weir exhibited a Hymenopterous insect, apparently a *Psen*, of which he had found enormous numbers (more than 150) congregated upon the surface of a pear tree leaf at Lewes; he was quite unable to understand for what motive they were thus brought together.

Mr. Dunning stated that he had received a communication from Mr. Nottidge, of New Zealand, asking if it were possible to send over humble-bees, in order, by means of cross fertilization, to procure seeds from clover, which plant remained infertile in the colony, failing suitable insect agency to aid its fertilization. It was suggested that by procuring a sufficient number of humble-bees when in a dormant condition, and keeping them in that state (by means of ice) during the voyage, the result might be obtained. Mr. McLachlan mentioned that he had received a letter from Capt. Hutton, from the same colony, stating that indigenous *Aphides* did not, apparently, exist there, but imported species were becoming very destructive, and he asked if it would be possible to import *Chrysopa*.

Mr. Baly communicated a further portion of his paper on the phytophagous *Coleoptera* of Japan.

Mr. Bates read a Supplement to his paper on the Longicorn *Coleoptera* of Chontales, noticing 37 additional species, and bringing the total to 309.

Mr. Miskin communicated criticisms on Mr. Masters' Catalogue of the described Diurnal *Lepidoptera* of Australia.

A fourth portion of the Catalogue of British Insects being published by the Society was on the table. It contains the *Hymenoptera* (*Oxyura*), compiled by the Rev. T. A. Marshall, M.A.

THE LOCAL ENTOMOLOGICAL SOCIETIES IN LONDON.

With the view of obtaining statistical information respecting the various local Societies now existing in London, and especially regarding the extent of a taste for entomological pursuits among the working classes (who form the principal element in most of these Societies), we lately addressed a circular to the officials of each body, who have most courteously furnished the required information, from which we have drawn up the present paper. The figures cannot fail to be both suggestive and instructive, especially to continental entomologists, for we have reason to believe that the existence either of Societies of this nature, or of a wide-spread taste for collecting insects among the artisans, &c., of continental cities, is quite unknown. So far as Paris is concerned, we recently made personal enquiries there, and were told that, although entomological *ouvriers* do exist, their number is quite insignificant.

We proceed to consider these London Societies according to the dates of their foundation:—

HAGGERSTON ENTOMOLOGICAL SOCIETY.—Established in June, 1858, under the present title. At present there are 116 Members. Subscription, one penny per week: entrance fee, one shilling. Meeting at 10, Brownlow Street, Dalston, every Thursday, from 8.30 to 11 p.m. Has a Library of over 200 vols., and collections (including 826 authentic types of species of British *Lepidoptera*); the property vested in two Trustees, and insured to the extent of £200. Six years ago it originated a system of Annual Exhibitions, in which it has been followed by similar Societies. We believe it consists almost entirely of working men.

EAST LONDON ENTOMOLOGICAL (BOTANICAL AND ORNITHOLOGICAL) SOCIETY.—Established in June, 1862, as the 'Eastern Entomological Society,' but now known under the above title. Subscription, one penny per week, with an entrance fee of twopence (for rules). Number of Members, 37. Meets every Wednesday evening, from 8 to 10.30, at 333, Mile End Road. Has a Library of 123 vols., and collections. Probably consists almost entirely of working men.

WEST LONDON ENTOMOLOGICAL SOCIETY.—Established in August, 1868, under the same title. 54 Members at the present time. Subscription, threepence per quarter: entrance fee sixpence. Meets at the 'Masons' Arms,' Tichbourne Street, Edgware Road, every Wednesday evening, from 8 to 10.30. Has held its first Annual Exhibition. Like the last, we believe this to consist of working men.

NORTH LONDON ENTOMOLOGICAL SOCIETY.—Established in the beginning of 1869 as 'I Zingari Entomological Society,' which title has been since changed. At present there are only 11 Members, five of whom are 'Honorary.' Subscription, six shillings per annum: entrance fee, one shilling. The meetings appear to have been temporarily suspended, but the next will take place on the

first Tuesday in March, 1874, at the residence of the Secretary, 6, Charlotte Street, N. This Society does not appear to be so flourishing as the others, and an earnest appeal is made by the Secretary for new Members.

SOUTH LONDON ENTOMOLOGICAL SOCIETY.—Established under this title in March, 1872. Number of Members, 81. Subscription, six shillings per annum: entrance fee, one shilling. Meets at the Assembly Rooms, 104, Westminster Bridge Road, each alternate Thursday, at 8 p.m. Has held two Annual Exhibitions. Possesses an extensive and increasing Library. We believe the social position of the Members is higher than in the preceding Societies, but the working-man element is represented.

KENSINGTON ENTOMOLOGICAL SOCIETY.—Established in January, 1873. 42 Members. Subscription, five shillings per annum, with no entrance fee. Place and time of meeting, the School House, Allen Street, Kensington, every alternate Friday, at 8 p.m. On the executive, are several well-known and prominent entomologists. We understand that the working-man element is at present not represented, but there is no desire to exclude it.

We have received copies of the printed rules of all of these Societies. These agree in most essential points, and it would be invidious for us to attempt any comparison of them. Any points upon which they differ concern only the members themselves.

The total number of individuals in London and its suburbs (including about 70 Metropolitan Members of the Entomological Society of London*), who, at the present time, testify to their interest in entomological pursuits by joining one or more of these Societies, is probably about 400. A more minute analysis would probably show that nine-tenths of the Members of the local Societies are interested solely in British *Lepidoptera*, the remaining tenth being distributed among the other orders, or principally attached to British *Coleoptera*.

The working-man entomologist is no modern institution in this country. A passion for collecting insects existed extensively among the Spitalfields silk-weavers of bygone days (see Crabbe); and, although that occupation is virtually extinct in London, the taste has remained, and is still strongly marked among the denizens of the eastern districts of our great metropolis.

The Editors will be obliged for information respecting entomological Societies, or entomological sections of general Natural History Societies, in other parts of the Kingdom, embodying the items above noted with regard to the London Societies. When sufficient statistics are collected, they will form the subject of a second paper.

1, Paternoster Row, London, E.C.:
December, 1873.

* It was perhaps a rather short-sighted policy that induced the founders of the chief British entomological Society to adopt a local title.

REMARKS ON SOME OF THE *HEMIPTERA* ENUMERATED BY
HERR THOMSON IN THE 4TH FASCICULUS OF HIS 'OPUS-
CULA ENTOMOLOGICA.'

BY J. W. DOUGLAS.

It appears to me that there are some discrepancies in the above named work, that, for the sake of preventing further confusion, it is desirable to notice.

Genus *ORTHOSTIRA*, *Fieb.*

"1. *O. CASSIDEA*.

Tingis cassidea, Fall., Hemiptera, 146, 7."

Among the specific characters is given "prothorace carinis postice sub-divergentibus." Now, Fallén says of his *Tingis cassidea*, "Thorax carina media distincta, lateralibus vero obsoletis." The *Tingis brunnea*, Germ., which is synonymous with the *Tingis cassidea*, Fall., is represented with only *one* middle keel. Thomson's species, therefore, cannot be the *T. cassidea* of Fallén.

The synonym next given is *Orthostira cervina*, Fieb., Eur. Hem., 146, 7, but the words in Thomson's diagnosis "prothorace angulis anticis rotundatis" are not applicable to Fieber's tricarinate species, of which he says, *l. c.*, "die Halsecke rechtwinkelig:"—this is a species we know very well. Fieber cites Germar's *Tingis cervina* (F. Ins. Eur., 18, 22) as his species, and I think rightly; for it is described (*l. c.*) as "thorace tricarinato," and, further, "margine laterali dilatato, antice angustiori, angulis anticis truncatis." Thomson's description, therefore, agrees as little with this, and the question remains, what is it?

It may here be mentioned in connexion with the name *Tingis cervina*, Germ., that Fieber has (Wien. Ent. Monats., vii, 212) described a species as *Orthostira cervina*, Germ., but without other reference, even to his own previous descriptions from which it entirely differs. It has but one keel on the pronotum, and therefore cannot be Germar's species: it more resembles *O. cassidea*, Fall., but, if distinct, it wants a new name. Fieber complicates the matter by adding "Hieher gehört nach genauer Vergleichung *O. platychila* ♂ als Synonym," which is difficult to comprehend, as *O. platychila* has three keels on the pronotum. Perhaps the *O. cervina* of the Eur. Hem. was intended to be referred to.

"2. *O. PLATYCHILA*, *Fieb.*

Orthostira intermedia, Flor."

The words "prothoracis angulis anticis sub-productis" in the

diagnosis, seem to show that the species may be correctly determined. Referring, however, to Fieber's original descriptions and figures in the Ent. Monogr., it will be seen that, except in its more elongate form, *O. platychila* differs but little from *O. cervina*, and both may really be but one species. At any rate, Fieber has disposed of the ♂ as belonging to *O. cervina*, Germ. (ut supra), and has therefore weakened the claim of his *platychila* to be acknowledged as a good species.

Monanthia (*O.*) *intermedia*, Flor, is referred by Fieber to *O. nigrina*, Fall., thus, "*M. intermedia*, Flor, ist die wahre *O. cinerea*, "Fieb. Beide sind aber gleich mit *O. (Tingis) nigrina*, Fall., nach "den schwedische Original-Exemplaren, obgleich Fallén in der Beschreibung die Farbe der Fühler nicht angibt" (Wien. ent. Monats., vii, 56).

"3. *O. NIGRINA*.

Tingis nigrina, Fall."

This species is, apparently, understood in the same sense as by Fieber, his description being quoted, but the diagnosis makes no reference to the rounded anterior angles of the sides of the pronotum, or to the anterior shortening of the side keels. *Tingis pusilla*, Fall., and *O. cinerea*, Flor., are both quoted as the apterous form of *O. nigrina*; but Fieber, probably on insufficient grounds, has retained *O. pusilla*, Fall., as a distinct species = *O. macrophthalma*, Fieb., *O. cinerea*, Flor (Wien. ent. Monats., vii, 57). I have recently seen a British example; and, when describing it hereafter, I shall revert to the subject of the synonymy.

"4. *O. CYLINDRICORNIS*, n. sp."

Of this it is said, *inter alia* "præcedenti similis et affinis, sed fere "duplo minor, antennis articulo 3º nigro, crassitie æquali, prothoracis "angulis anticis et lobo medio adhuc minus productis."

"5. *O. PARVULA*.

Tingis parvula, Fall.

Orthostira parvula, Flor.

„ *obscura*, Fieb."

This is probably correct. Fieber says *O. parvula*, Fall., was unknown to him (Eur. Hem., 384); but the species is *O. obscura*, H.-S., and is so cited by Fieber.

"6. *O. BISERIATA*, *n. sp.*"

Said to resemble the last, but narrower and less dilated posteriorly; crown narrower, with the spines rather longer; prothorax longer, with parallel keels, anterior angles less produced, lateral margin with two rows of cells; elytra with larger cells, which, in the discoidal area are in three rows, and in the sutural area in two rows.

"7. *O. RECTICOSTA*, *n. sp.*"

Very like in form and size to *O. biseriata*, disc of the prothorax more closely and finely punctate, the posterior process longer, evidently areolate, the sutural area of the elytra, posteriorly, with three rows of cells.

May it be that these last two are sexes of one species, or is either of them the ♂ of *O. parvula*? It is almost impossible to determine any of such small species without fuller descriptions than are here given, or without seeing typical examples: the confused synonymy of the older species in the genus shows this. I have noticed these "new species" in the hope of drawing thereto the attention of collectors in this country, where, especially in the north, such forms may be expected to occur, and so get the matter elucidated.

Lee: November 26th, 1873.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the BYTHOSCOPIDÆ, and descriptions of some species not hitherto recorded as British.

(continued from page 131).

Species 4.—*PEDIOPSIS VIRESCENS*, Fab.

Cicada virescens, Fab., Ent. Sys., vol. iv, 46, 84.

Cicada graminea, Fab., Ent. Sys., Supp., 521, 47.

Iassus gramineus, Germ., Ent. Mag., vol. iv, 81, 4.

Iassus virescens, Germ., Ent. Mag., vol. iv, 82, 5.

Pediopsis virescens, Flor, Rhyn. Livl., vol. ii, 188, 3; Marshall, Ent. Mo. Mag., vol. ii, 126, 4; Fieb., Verhandl. d. k. k. zool.-bot. Gesell., 458, 5 (1868); Kirschb., Cicad., 175, 8; J. Sahlb., Not. Fenn., 127, 8.

♂ and ♀. Entirely green, or sometimes with a small black spot in the centre of the upper margin of the frons (var. *graminea*, Fab.).

Elytra white, clear, almost transparent; nerves bright green; membrane appendix fuscous, the colour sometimes extending for a little way into the adjoining areas. *Legs* green; *tibiæ*, at the base, frequently with a small black spot exteriorly, and sometimes another on the inner margin.

Abdomen above, green, with a broad black streak down the centre, leaving the posterior margin of the segments narrowly green; beneath green; last genital segment pale green or greenish-yellow, base above, black; external processes green or greenish-white, clothed with long, fine, white hairs.

Length, $1\frac{3}{4}$ — $2\frac{1}{4}$ lines.

Although Fieber, in the *Verhandl. d. k. k. zool.-bot. Gesell.*, 459, 7 (1868), describes the *P. prasina*, Boh., as a distinct species, I cannot at present arrive at the same conclusion, as the differences he gives appear to me to be of too trivial a character to lead to their separation.

Not an uncommon species around London and at Deal on sallows, in July and August.

Species 5.—*PEDIOPSIS IMPURA*, Boh.

Iassus impurus, Boh., *Nya Sv. Homop.*, 37, 9 (1847).

Pediopsis impurus, J. Sahlb., *Not. Fenn.*, 133, 13.

B. *Face spotted with black.*

1. NERVES PALER THAN THE ELYTRA.

♂ and ♀. Pale sordid yellow, with a brownish tinge or fuscous-grey, slightly shining; nerves of the elytra pale.

Head luteous or pale ochreous-white. *Face* with five black spots placed in the form of an irregular pentagon, the two lowest of which are the largest, and generally somewhat rhomboidal in shape; the space enclosed by the spots more or less thickly and finely brown punctured. *Ocelli* sometimes with a narrow black margin.

Thorax: *pronotum* somewhat coarsely crenulated, the interstices sometimes faintly brown punctured; anterior margin with a short, black, shining, transverse patch, centre sometimes with a black spot. *Scutellum* pale luteous, or more or less brown; basal angles with a triangular black spot, sometimes the apex, from the transverse channel, black. *Elytra* pale sordid yellow with a brownish tinge, somewhat darker round the apex, or fuscous-grey; nerves pale; claval suture narrowly brownish. *Sternum* of the ♂ black, margins of the segments luteous or yellowish; ♀ entirely luteous or yellowish, or sometimes as in the ♂. *Legs* yellow; *thighs*—1st and 2nd pairs more or less brown, 3rd with a dark brown or piceous streak along the upper side; *tibiæ*—3rd pair, at the base, with a black spot exteriorly; inner margin, from the base to the apex, more or less broadly black; *tarsi* yellow or sometimes faintly brownish, apex of the 3rd joint narrowly, and *claws* black.

Abdomen of the ♂ black, margins of two or three of the last segments, on the sides,

yellow; ♀, beneath yellow or fuscous-yellow; last genital segment of the ♂ black, posterior margin broadly yellow, external processes yellowish or pale brownish-yellow. Length, ♂, $1\frac{1}{2}$; ♀, 2 lines.

Very closely allied to the next species, but it is smaller, and of a more dingy character, having besides five spots on the face, whereas *P. distinctus* has only four.

A somewhat common species, and taken by Mr. Douglas and myself at Deal on the dwarf sallow, in July.

Species 6.—*PEDIOPSIS DISTINCTUS*, *sp. n.*

Yellowish, testaceous, or pale brownish-yellow. *Face* with four black spots placed two next the crown, remote, small, round, and two adjoining the base of the clypeus, rhomboidal, large, approximating (sometimes the margin of the ocelli black). *Scutellum* yellow, with a triangular black spot next the basal angles; a longitudinal, brown, central line divided by a very fine yellow line, and a spot of the same colour beyond the transverse channel. *Clavus*—inner marginal nerve pale yellow. *Corium*—along the inside of the anterior marginal nerve brown; posterior marginal nerve, from the apex of the clavus, dark brown.

Head yellow; *crown* sometimes dusky. *Face* yellow, next the crown sometimes inclined to dusky, with four black spots placed two next the crown, remote, and two adjoining the base of the clypeus, the former small and round, the latter large, rhomboidal; the recess, in which is placed the antennæ, black. *Antennæ* and *setæ* yellow, apex of the latter brownish.

Thorax: *pronotum* yellowish, between the crenulation pale fuscous; behind each eye a large, transversely placed, black unpunctured spot, exterior to which is a minute round one of the same colour; posterior margin narrowly pale. *Scutellum* yellow, with a black, triangular spot next the basal angles; down the middle a brown line, divided by a very fine, yellow, central line, extends from the base to the transverse channel, beyond which is a brown spot; apex yellow. *Elytra* yellowish, testaceous, or pale brownish-yellow; nerves paler than the disc. *Clavus*, at the base, next the suture, with a short, brown streak, best visible when the elytra are opened; inner marginal nerve pale yellow. *Corium*, along the inside of the anterior marginal nerve, brown; posterior marginal nerve, from the apex of the clavus, dark brown; disc sometimes with a few small, pale brownish spots, placed very irregularly. *Sternum* yellow; *mesosternum*, on the sides, black, with a yellow margin; *metasternum* yellow or with a faint brownish tinge, outer angle with a black spot. *Legs* yellow; *thighs*—apex of the 1st and 2nd pairs, on the inside, brownish, 3rd with a small brown spot at the apex, on the upper margin; *tibiæ* yellow, all the pairs with the usual black spot at the base exteriorly, most distinct on the 3rd pair, which have also a black line down the middle of the inside; spines pale; *tarsi* yellow; *claws* brown.

Abdomen above, black, posterior margin of the segments yellow, widest on the sides ; beneath black, posterior margin of the segments broadly yellow, sides almost entirely yellow ; last genital segment black at the base, lower margin narrowly, and posterior half on the sides, yellow ; external processes yellowish-white.

Length, ♂, 2 lines.

Larger than *P. impura*, to which it is closely related, but the colour is clearer, and the insect more shiny than that species ; and besides it has not the fifth black spot on the vertex, which is always present in the above-named.

The description has been made from two ♂ examples taken by Mr. Douglas, at Darenth, in July.

Species 7.—*PEDIOPSIS FUSCINERVIS*, Boh.

Iassus fuscinervis, Boh., *Nya Sv. Homop.*, 57, 29 (1845).

2. NERVES DARKER THAN THE ELYTRA.

♀. Very pale fuscous-white. *Head* dusky yellow. *Face* pale greenish, with four black spots ; the two upper spots larger and more remote than the two under ones, which last are situate almost in a line with the lower margin of the eyes. *Scutellum* yellowish-white ; basal angles with an indistinct, brown, triangular spot. *Elytra* shining, very pale fuscous-white, almost transparent ; nerves pale brown or fuscous.

Head dusky yellow. *Face* pale greenish, with four round, black spots, the two next the crown larger and more remote than the two nearly in a line with the lower margin of the eyes. *Antennæ* pale yellow ; *setæ* pale yellow, towards the apex somewhat fuscous.

Thorax : *pronotum* pale fuscous-yellow, finely crenulated ; next the anterior margin a transverse, unpunctured, dusky patch, lying in a line between the inner margin of the eyes and the round black spot next the crown. *Scutellum* yellowish-white ; next the basal angles a somewhat indistinct, brown, triangular spot ; apex, from the transverse channel, green, very finely wrinkled transversely. *Elytra* shining, very pale fuscous-white, almost transparent ; nerves pale brown or fuscous. *Sternum* yellow. *Legs* yellow ; *tibiæ*, at the base, exteriorly, with a black spot ; *tarsi* yellow ; apex and *claws* brown.

Abdomen above, yellow, on the sides somewhat greenish ; beneath yellow.

Length, ♀, $2\frac{1}{4}$ lines.

Unlike any other of the species in this section with which I am acquainted. Its paleness, and the want of the black triangular spot (in some cases indistinctly brown) at the basal angles of the scutellum, afford excellent characters for its recognition. Boheman says in his diagnosis, "*Capite maculis quinque nigris*," but as all the species are

more or less liable to vary in this respect, and as all the other characters agree so well with his description, I consider the difference of minor importance.

I possess a single ♀ example, taken some years ago on Plumstead Heath, in August, and which was sent to the late Dr. Fieber for determination, who returned it with the above name attached. From the green colouring on the insect, I believe it to be somewhat immature.

Species 8.—*PEDIOPSIS NASSATUS*, Germ.

Iassus nassatus, Germ., F. Ins. Eur., fasc. 17, 13.

Bythoscopus marginata, H.-Sch., D. I., 143, 8.

Pediopsis nassatus, Flor. Rhyn. Livl., vol. ii, 189, 4; Marshall, Ent. Mo. Mag., vol. ii, 124, 1; Kirschb., Cicad., 174, 6; J. Sahlberg, Not. Fenn., part 12, 131, 11.

Pediopsis marginatus, H.-Sch., D. I., 143, 7 (var.) ; Kirschb., Cicad., 174, 7; J. Sahlberg, Not. Fenn., part 12, 133, 12.

Pediopsis planicollis, Thomson, Opusc. Ent., 320, 8 (1870).

♂ and ♀ more or less brownish-testaceous or yellowish. *Head* yellow or yellowish-white. *Face* with four or five black spots, and frequently the margin of the ocelli narrowly black. *Pronotum* with four or five more or less confluent black spots next the anterior margin, sometimes one or more wanting. *Scutellum* more or less clear yellow, with a triangular, black spot near each basal angle. *Elytra* pale brownish-testaceous or yellow; nerves piceous or black.

Head yellow or yellowish-white. *Face* generally with five black spots, placed three next the crown, and two (frequently comma-shaped) about in a line with the lower margin of the eyes; the central spot of the three, next the crown, is often changed into a short, longitudinal streak, divided by a very narrow, yellow, central line. *Loræ* sometimes narrowly margined with black internally. *Antennæ* yellow; setæ fuscous, base yellow.

Thorax: *pronotum* more or less brownish-testaceous, or the disc somewhat fuscous-yellow, leaving the anterior portion yellowish, and with four or five black spots more or less large and confluent. *Scutellum* more or less clear yellow, with a triangular, black spot near each basal angle. *Elytra* pale brownish-testaceous or yellow, almost transparent. *Clavus*—inner marginal nerve piceous; between the base, where it is widest, and the scutellar angle, black; nerves of the disc brown or fuscous. *Corium*—nerves piceous or black, paler from the first pair of transverse nerves to the apex of the membrane. *Sternum* yellow. *Legs* yellow; *tibiæ*—3rd pair at the base, exteriorly, with a black spot; *tarsi* yellow, apex and *claws* dark brown.

Abdomen above, black, posterior margin of the segments narrowly yellow, except in the two last, which are broadly so on the sides; beneath yellow; last genital

segment yellowish or pale brownish-yellow; on the sides, at the base, broadly black; external processes pale yellowish-white, somewhat thickly clothed with long white hairs. Length, ♂, 2; ♀, 2½ lines.

Very similar to *P. scutellatus*, which insect has the pronotum invariably darker. *P. nassatus* has somewhat a hoary appearance when in repose, and viewed from above. Germar's figure is very bad, as is also his description.

Not unfrequent. Taken by Mr. Douglas and myself at the sallow pit, Lee, Dartford and Weymouth, in August.

Species 9.—*PEDIOPSIS SCUTELLATUS*, Boh.

Iassus scutellatus, Boh., Nya Sv. Homop., 53, 26 (1847).

Pediopsis scutellatus, Flor, Rhyn. Livl., ii, 191, 5; Marshall, Ent. Mo. Mag., vol. ii, 125, 2; Thomson, Opusc. Ent. 320, 6 (1870); J. Sahlberg, Not. Fenn., part 12, 135, 15.

Bythoscopus diadema, H.-Sch., D. I., 143, 11; Kirschb., Cicad., 172, 3.

Pale testaceous, shining.

Head pale yellowish or yellowish-white. *Face* with from four to seven black spots, placed two (or three) on the upper margin of the crown, two at the margins of the ocelli sometimes, and two, more approximating than the others, in a line with the lower margin of the eyes, either rhomboidal or comma-shaped.

Thorax: pronotum—disc more or less dark fuscous or black between the crenulation.

Scutellum yellow, with a black triangular spot near each basal angle, and, generally above the transverse channel, two small black or dark brown punctures.

Elytra (in repose) pale testaceous, or with a faint brownish tinge; *clavus* and *corium*—nerves stout, dark pitchy-brown, finely punctured on each side; *membrane*—nerves finer and paler than those on the corium. *Legs* testaceous or pale brownish; *thighs*—3rd pair on the lower margin, next the apex, sometimes with a short dark streak; *tibiae*—3rd pair at the base, exteriorly, with a black spot; *tarsi* yellowish or pale brownish.

Abdomen above, black, posterior margin of the segments narrowly yellow; beneath black, posterior margin of the segments more or less broadly yellow; last genital segment black, lower margin narrowly, and posterior margin broadly testaceous, or pale brownish-yellow; external processes pale brownish, internally clothed with long white hairs. Length, 2 lines.

Slightly smaller than *P. nassatus*, to which it bears a very great resemblance; it has, however, a darker coloured pronotum than that species, and the nerves of the elytra stouter and punctured on either side. Boheman only mentions four black spots on the face, but all other authors, who apparently recognise and describe their insects as his species, differ from him in this respect, and give the number of spots as variable, with which my specimens, as well as those of Mr. Douglas and the Rev. T. A. Marshall, agree.

Common on willows, &c., from July to September, and taken by Mr. Douglas and myself at the willow pit, Lee; Deal, Tunbridge Wells, Darenth, and Bournemouth; Leicester (Marshall).

Species 10.—*PEDIOPSIS TIBIALIS*, *sp. n.*

♂ and ♀ dirty yellow; *tibiæ*—all the pairs with two short, black, half rings on the inside, placed one near the base, the other before the apex.

Head: *face*, at the base, with a black (|>-shaped character, within which it is more or less punctured with dark brown or black, frequently the sides of the oval at the top and bottom, where it joins the central line, are interrupted; exterior to the *ocelli* is a small black spot, below which, and a little more interior, are two somewhat comma-shaped black spots or sometimes unidentate streaks, extending almost to the outer margin a little below the eyes. *Loræ*, next the *clypeus*, with a small black spot near the apex. *Antennæ* yellow; *setæ* brown.

Thorax: *pronotum* somewhat coarsely crenulated, the interstices more or less thickly dark brown or black punctured, the punctures slightly elongate; from behind each eye to the posterior angle is a broad, curved, black streak, its inner margin more or less shaded off into the general colour of the disc; lateral margins broadly clear yellow; near the basal angles a small black spot. *Scutellum* yellow, basal angles with a black triangular spot; down the centre, as far as the black transverse channel, is a more or less distinct black line, and a little below and within the apex of the triangular spots, a small round or lunate black puncture. *Elytra* pale yellowish, with a slight brown tinge; nerves dark brown or black. *Clavus*—inner margin black, suture very narrowly brownish. *Membrane*—appendix, except a small portion next the clavus, black. *Sternum* yellow; *pro-* and *mesosternum*, on the sides, with a broad black band. *Legs* yellow; *coxæ* of all the pairs with a black spot in front; *thighs*—1st and 2nd pairs brown, apex yellow; 3rd, at the apex, more or less brown on the sides and top margin. *Tibiæ* yellow; at the base, exteriorly, a short black streak, frequently indistinct or wanting in the 1st and 2nd pairs; on the inside, a little before the base and also before the apex, is a small black half ring, largest and most conspicuous on the 3rd pair. *Tarsi* yellow; apex of the 3rd joint narrowly, and *claws* black.

Abdomen above and beneath black, posterior margin of the segments narrowly yellow, or beneath (sometimes) 1st and 2nd segments yellow, except on the sides; last genital segment black, with an almost round yellow spot on the sides next the apex; external processes very pale brown, clothed with long, fine, white hairs.

Length, ♂, $1\frac{3}{4}$; ♀, $2\frac{1}{4}$ lines.

In appearance, very like *P. scutellatus*, from which it may be easily separated by the difference in the frons, and also the characters on the *tibiæ*.

A few examples have been taken by Mr. Douglas and myself at Dartford Heath, also in Headley Lane and in Bexley Road. It occurs on poplars in July and August.

(To be continued).

NOTES ON THE DEVELOPMENT OF *VOLUCELLA BOMBYLANS*,
PARASITICAL IN THE NESTS OF CARDER-BEES; WITH OBSER-
VATIONS ON THE DEVELOPMENT OF THE TUBULAR HEAD
APPENDAGES OF ITS PUPA.*

BY ELEANOR A. ORMEROD.

About the 20th of July in last year (1872), a few Carder-bees' nests were brought me, which I placed aside for observation. In one case the moss was much disturbed, and the bees, as if fearful of attack, almost immediately formed a partial inner roof; but, some enemy, soon after, scratching the nests to pieces, I was only able to continue the observations, as far as the bees were concerned, for a few days.

Amongst the fragments of the nests, I noticed on July 27th a number of larvæ of a *Volucella*; these appeared exceedingly sensitive to observation, disappearing with the greatest rapidity into the moss and fragments when disturbed, and varying a good deal in their method of locomotion, the larger ones apparently only making use of their rings, the smaller specimens holding by the mouth, and drawing the body after, using the tail as an occasional point of attachment.

The length of the larvæ varied from about an eighth to three-quarters of an inch, the smaller specimens being armed with a double row of pointed processes down the back, and another down each side.

In the smallest larvæ the pointed growths appeared simple; in larger specimens the beginning of a side growth appeared on these processes, which was still more conspicuous as the larvæ advanced in age up to a certain point; but, in what appeared the largest size attained, these processes were obsolete, save as short recurved growths, in some degree resembling rose thorns, placed along the sides, and for a short distance near the head.

On August 1st, two of the larvæ appeared contracted in shape and nearly motionless, lying beneath the surface of the turf. On August 6th, two more buried themselves, and others gradually became motionless, but without any definite change during the autumn; and, on the approach of winter, I placed them in two flower pots, and buried them in the ground.

On March 12th, 1873, I examined them, and found the larvæ looking plump and healthy, but without any characteristic change. On March 29th and April 14th, they were still unaltered; and on April 16th, on opening one of the larvæ, I did not find any internal change, though the contents appeared perfectly healthy.

* Read at the Meeting of the Kensington Entomological Society, 14th November, 1873; communicated by ANDREW MURRAY, Esq., F.L.S.

On May 9th, for the first time, I observed one of these larvæ changing to a more globular form; this change showing still more plainly, accompanied by the appearance of a darker colour, on May 13th.

On May 19th, I found the *Volucella* grubs decidedly altered in shape to a more contracted and globose form, and, on opening what now might be called the puparium, I found the contained pupa so far developed as to be perfectly free of its case, save a slight attachment at the tail. The creature (Fig. 1), taken from its case, showed the head, thorax, and abdomen, the head having two blunt processes tipped with brown on the upper part, but the rest of the pupa was still soft and moist, the future limbs not showing till after being contracted in spirit; the wings showed themselves clearly, with some degree of appearance of the future legs.



Fig. 1

On June 2nd, the development had much advanced, the pupa now showing wings, legs with their tarsi, and also many portions of the structure of the mouth: the external appearance of the puparium (Fig. 2, magnified) was pyriform, truncate at the caudal extremity,



Fig. 2

with the larval segments drawn up into transverse wrinkles, the radiating points at the tail much dried, and the portion (Fig. 3) which, in the larval stage, served as a caudal foot, and which then was very remarkable for its power of protrusion and retraction, now dried and permanently exerted, and of a deep red colour. The head appendages were



Fig. 3

now very conspicuous (Fig. 4), clavate in shape, shiny, black, and covered with tubercles, both tubercles and depressions being punctate.

On June 8th, for the first time, I found a developed *Volucella* under the guarding cover, recently hatched, and not yet sufficiently hardened to enable it to fly; this, on examination,



Fig. 4

was found to be a specimen of the *V. bombylans*, and on June 17th another of the same species, of the black variety, was hatched from the same collection.

Besides the *Volucellæ* which developed into active existence, there

were other specimens which, taken from the puparia in various states of development, showed the growth of the head appendages in an almost complete series.

The first occasion on which I noticed these appendages (or horns) was on a *Volucella* pupa so far formed that it was easily removable, save at the caudal extremity, from the puparium, but still very soft, and only partially developed: here the horns adhered entirely to the pupa, and I did not notice any external signs of them on the puparium.

A more advanced specimen was fixed by the horns to its case, these horns being now visible externally; and this adhesion continued till the development of the fly, when the black, horn-like appendages remained outside the emptied puparium, and the perfect fly showed no trace of their former presence.

Examining their structure, they appeared in the early stage, and to a careful general inspection, to be simply white, like the developing insect, with brown tips, and, when further advanced in age, as two tubes set immediately over the top of the back of the head, each horn with its basal appendage at the highest angle of the eye of the insect. Fig. 5 gives a side view of one of these horns with the eye of the pupa beneath. These tubes were of white pitted or porous tissue, passing forwards and upwards under two perfectly transparent, bladder-like growths (which almost touched each other on the summit of the head), and,



Fig. 5

on leaving the bladder and growing through the puparium, appearing externally as dark coloured tuberculated club-like excrescences, as drawn much magnified in Fig. 6, in which the part above the dotted line represents the portion projecting beyond the pupa-case. The club itself showed (Fig. 4) as much tuberculated and punctate, slightly hairy at the extremity, black in colour, and joined by a ring of brown to the hollow tube of white pitted tissue.

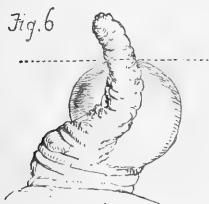


Fig. 6

On approaching maturity (in a specimen examined after death), the transparent tissue changed to a confused mass of fine threads, easily removable as a sheet, with the neighbouring portions of pellicle,

and leaving no trace of its former existence beneath, on the eyes of the perfect *Volucella*.

The structure of the wall of the hollow tube of the head appendage, showed, after slight maceration and under a quarter-inch object glass, as externally slightly corrugated, with a series of round or pointed oval pits or pores, arranged irregularly, but for the most part in parallel lines round the tube. On the inside, the wall of the tube was set with minute, spine-like growths (as at Fig. 7), straight, or slightly curved in shape, these projecting into the hollow of the horn-like tube, and, like the

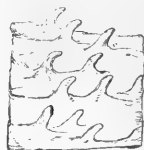


Fig. 7

external pits or pores, set for the most part in lines round it. The intervening structure between the inner and outer coats of the tube wall showed as formed of fibres, or tubes, very irregular in their course, and frequently anastomosing (Fig. 8), of various sizes, and with markings on them coinciding, apparently, with the position of the pits on the external coat.



Fig. 8

During the growth of the pupa in its case, although it was (after the early part of its change) firmly fixed in place by these tubular

head appendages, yet there did not appear to be any connective growth between them and the pupa-case (formerly the larval skin): they could be withdrawn through it, like a finger from a ring, leaving a neat circular aperture at their point of passage; and from this circumstance, and the various details, it appears as if the growth of the head-tubes began at the time of the pupal change from the larval state, and that the horns forced their way through the hardened case, and remained fixed there, the internal tissue connected with them breaking up just before the full development of the fly in the puparium.

Their use I conjecture to be as a temporary breathing apparatus; the external pits, and the anastomosing internal tissue (conjecturally) supplying the place of the organs contracted and clogged by the change in the skin, and by the various accumulations of matter probable during the long winter quiescence of the larvæ in their immovable stage of existence.

Looking on the experiment as a whole, it appeared that the *Volucellæ* larvæ lost their power of feeding, and much of their power

of movement, early in the autumn ; that they remained buried and quiescent till about the middle of the following May ; and that the pupal change occupied about four weeks from the time of the first noted external change, to the development into active existence of the first imago hatched from them. The long deferred period of pupation explains its own special end, in producing the first *Volucellæ* of the season exactly at the period when the bees'-nests, in which they are parasitical, are first ready to receive them.

ON NEW COLEOPTERA FROM JAPAN.

BY T. VERNON WOLLASTON, M.A., F.L.S.

(concluded from page 172).

FAM. LATRIDIIDÆ.

Genus HOLOPARAMECUS, Curtis, in Ent. Mag., i, 186 (1833).

Amongst the *Coleoptera* which were collected by Mr. Lewis in Japan, there are five species of *Holoparamecus* ; and, as four of them appear to me to have been hitherto undescribed (the fifth one being the widely distributed *H. Kunzæi*, Aubé), I propose to give diagnoses of these latter. I should add, however, that one (out of the four), namely, the *H. capitatus*, founded upon a single example (of great structural peculiarity), may possibly prove to be but the male sex of the preceding species (the *H. signatus*) ; though, as I have no means of ascertaining this for certain, it is scarcely possible to act on that hypothesis, and I must needs leave the question to be solved by future evidence. Considering how few *Holoparameci* have as yet been defined, it is remarkable that so many as four additional ones (assuming the *H. capitatus* and *signatus* to be distinct from each other) should have been met with by Mr. Lewis ; and in order, therefore, to render the geographical distribution of the nine members of the group with which I am acquainted, and their sequence *inter se*, intelligible, it may perhaps be worth while to enumerate them afresh. And, when we bear in mind that the first and second representatives of Section I, namely, the *H. Kunzæi* and *singularis*, possess two sets of individuals (in all probability males and females) in which the antennal joints are respectively nine and ten, there is every reason to believe that the *H. ellipticus* and *signatus* (the examples of which now before me have 9-articulated antennæ) will be found eventually to be in the same predicament, and likewise that the *H. capitatus* (the unique exponent of which has its antennæ composed of ten joints) will display a form in which the antennæ are also 9-jointed.

Qualified by this latter remark, the particular members of the genus which I have had an opportunity of examining may be arranged as follows :—

§ I. *Antennæ 9- et 10-articulatæ.*

1. *Kunzæi*, Aubé ; America, India, Japan, Madeira, &c.
2. *singularis*, Beck (= *difficilis*, Villa, *depressus*, Curt., *Villæ*, Aubé) ; Europe, Canaries, &c.
3. *ellipticus*, Woll. ; Japan.
4. *signatus*, Woll. ; Japan.
5. *capitatus*, Woll. ; Japan.

§ II. *Antennæ 11-articulatæ.*

6. *caularum*, Aubé (= *Panckouckii*, Guér.) ; Europe, Africa, Canaries, &c.
7. *niger*, Aubé ; Sicily, Madeiras, Canaries, &c.
8. *bipartitus*, Woll. ; Cape Verde Islands.
9. *contractus*, Woll. ; Japan.

With these few preliminary observations, the four species from Japan, which I believe to be undescribed, may be characterized thus :—

§ I. *Antennæ 9-articulatæ ; articulo 3^{to} sequentibus distincte longiore.*

HOLOPARAMECUS ELLIPTICUS, n. sp.

H. ellipticus, convexiusculus, vel rufo-ferrugineus vel rufo-testaceus, sub-nitidus, (oculo fortissime armato) subtilissime et parce pubescens, ubique sub-obsolete punctulatus ; oculis sat prominentibus ; prothorace subcordato-quadrato (postice paululum angustiore, ad latera oblique sub-recto, angulis posticis sub-rectis), basi in medio leviter transversim impresso (parte basali foveâ longiusculâ utrinque terminatâ, necnon carinulâ mediâ brevissimâ tenuissimâ subdivisâ) ; elytris sub-ellipticis, singulis striâ suturali rectâ leviter impressis.

Long. corp. lin. viæ ¾.

In the two examples from which the above diagnosis has been compiled, the antennæ are 9-articulate ; but whether the opposite sex (assuming these individuals to belong to one and the same) has those organs composed of ten joints (as is the case in the *Kunzæi*, Aubé, and the *singularis*, Beck), I am unable to say. At any rate, even if it be so, the species is totally distinct both from the *Kunzæi* and the *singularis* (the former of which, so widely distributed over the world, was also met with in Japan by Mr. Lewis), being well defined by its rather convex and elliptical elytra and its somewhat quadrate prothorax (which is only slightly narrowed behind, and a good deal straightened, though oblique, at the sides, with the centrally-divided

basal impression terminated at either extremity by an elongated line or fovea). Its surface is most minutely and obsoletely punctulated, the third joint of its antennæ is conspicuously longer than those which immediately follow, and its sutural stria is very lightly impressed.

HOLOPARAMECUS SIGNATUS, *n. sp.*

H. subellipticus, depressiusculus, rufo-ferrugineus, nitidus, (oculo fortissime armato) subtilissime et parce pubescens, ubique distincte punctulatus; oculis magnis, valde prominentibus; prothorace quadrato-cordato (postice gradatim angustulo, angulis posticis rectis), ante basin in medio lined transversâ impresso (parte basali foveâ utrinque terminatâ, necnon carinulâ mediâ brevissimâ tenuissimâ sub-divisâ); elytris sub-ellipticus, singulis striâ suturali rectâ leviter impressis.

Long. corp. lin. $\frac{3}{4}$ —1.

This species and the *capitatus* (if, indeed, the two are more than mere sexes of each other) are the largest of the *Holoparameci* which I have hitherto seen; and, although their colour is darker or more ferruginous, their *outline* is a good deal that of the *H. Kunzæi*, which has likewise the antennæ 9- and 10-articulate. On account of the extraordinary structure, however, of the antennæ of the *H. capitatus*, it is only the present species which need be even contrasted with the *Kunzæi*; and I may therefore add that the *signatus* is distinct from the latter, not merely in its darker hue and larger bulk, but likewise in its eyes being more prominent, its surface more sharply punctulated, and in its antennæ having their third joint more appreciably lengthened, and their club more abrupt.

§ II. *Antennæ 10-articulatæ; articulo 3^{tio} sequentibus viâ longiore, 9^{no} et 10^{mo} clavam maximam valde abruptam, apice oblique acuminatam, efficientibus.*

HOLOPARAMECUS CAPITATUS, *n. sp.*

H. præcedenti similis, et forsân ejus sexus alter. Differt solum (tamen omnino) antennis brevioribus necnon ex articulis 10 (nec 9) compositis,—articulo 3^{tio} sequentibus viâ longiore, 8^{vo} latiusculo transverso, sed 9^{no} et 10^{mo} clavam maximam valde abruptam (illo maximo subrotundato-quadrato, sed hâc minore et versus apicem oblique acuminato) efficientibus.

Long. corp. lin. $\frac{3}{4}$.

As already implied, this may possibly prove to be but the male sex of the *H. signatus*,—for the analogy of the *H. Kunzæi* and *singularis*, in which the antennæ are *both* 9- and 10-articulate, would not militate (but quite the reverse) against this supposition. Still, although apparently similar to the *signatus* in other respects, the structure of its antennæ is so different, that it is not easy to believe that the peculiarities of the latter are merely sexual ones. Thus, not only are they

shorter, and 10- (instead of 9-) jointed, but their third articulation is appreciably more abbreviated (being scarcely longer than those which immediately follow it), the 8th one (adjoining the club) is much broader, and, indeed, *transverse*, and the capitulum itself is *very* much larger and more abrupt. Indeed, this latter is most remarkable, its first joint being greatly swollen or inflated, and the second one much narrower and shorter, and very *obliquely acuminate*.

§ III. *Antennæ 11-articulatæ; articulo 3^{ti}o sequentibus vix longiore.*

HOLOPARAMECUS CONTRACTUS, *n. sp.*

H. ellipticus, sub-converus, rufo-testaceus, nitidus, (oculo fortissime armato) subtilissime et parce pubescens; oculis prominentibus; prothorace valde cordato (scilicet antice lato rotundato, postice subito et profunde contracto, angulis posticis rectis), basi in medio late et grosse transversim sub-bituberculato (tuberculis carinulâ mediâ brevissimâ tenuissimâ divis); elytris ellipticis, singulis striâ suturali rectâ profundâ impressis; antennis elongatis. Long. corp. lin. vix $\frac{3}{4}$.

A species well distinguished from the other three exponents of this section which I have hitherto examined (namely, the *H. caularum*, Aubé, the *niger*, Aubé, and the *bipartitus*, Woll.), by its larger size and much more cordate prothorax (which is more suddenly and conspicuously contracted behind), by its more convex and very elliptical elytra, and by its longer antennæ. Judging from the examples before me, the colour appears to be pallid, the surface very lightly and indistinctly punctulated, and the sutural stria to be deeply impressed.

Teignmouth: October, 1873.

DESCRIPTION OF A NEW SPECIES OF *ISONYCHUS* (FAM. MELOLONTIDÆ), FROM GRANADA.

BY CHAS. O. WATERHOUSE.

ISONYCHUS MACULATUS, sp. nov.

Niger, dense fulvo-pubescens; capite, elytris maculis quatuordecem, antennis pedibusque nigris. Long. $6\frac{1}{4}$ lin.; lat. $3\frac{1}{2}$ lin.

Resembles *I. marmoratus* in form. Head black, slightly tinged with æneous, with a little fulvous pubescence, moderately thickly and strongly punctured; clypeus sparingly and very strongly punctured, with black pubescence. Thorax above brown, densely and evenly clothed with fulvous pubescence, thickly and finely punctured. Scutellum as long as broad, sub-acuminate, fulvous. Elytra with the striæ moderately impressed, nearly equally distant, the alternate interstices slightly convex, densely clothed with fulvous pubescence,

except seven spots on each elytron, which have black pubescence. These spots are placed—one on the shoulder and reaching to the scutellum; the second and third on the margin, conical, one near the middle and the other sub-apical; the fourth just below the scutellum; the fifth between this and the central lateral one; the sixth next the suture, round, rather below the middle; the seventh round, apical. Abdomen reddish-brown, thickly and finely punctured, and clothed with fulvous pubescence. Pygidium light reddish-brown, clothed with fulvous pubescence, and thickly punctured in the male, without pubescence, and with a few small tubercles irregularly placed, in the female. The sternum slightly tinged with æneous. Legs black, the femora slightly æneous.

The male specimen has the fourth and fifth spots on the elytra confluent.

Hab.: Medellín, Granada.

Coll. Brit. Mus.

British Museum:

December 4th, 1873.

DESCRIPTION OF A NEW GENUS AND SPECIES OF SATYRIDIAN BUTTERFLIES.

BY ARTHUR G. BUTLER, F.L.S.

Among the many highly interesting and remarkable insects recently brought home from Chili by Mr. Edwyn C. Reed, is a very beautiful new form belonging to the sub-family *Satyrinæ*, which, as it differs considerably from all the genera of that sub-family in structure, I propose to make the type of a new genus, characterized as follows:—

STIBOMORPHA, *g. n.*

Wings broad, coarsely scaled; primaries of the same form and neuration as in *Tetraphlebia*, but slightly broader, and the veins consequently wider apart: secondaries, costa distinctly arched; outer margin very feebly arched and scalloped, with fringe very long; inner margin undulated, distinctly excavated above anal angle; neuration somewhat similar to that of *Tetraphlebia*, but the veins wider apart, the sub-costal nervules emitted closer together, and the relative lengths of the discocellulars reversed (the lower being about four times the length of the upper, running sub-parallel to the discoidal nervure for half its length, and then diverging very obliquely to the origin of the third median nervule); palpi slender and long, longer than in *Tetraphlebia*, and less hairy; eyes comparatively smaller; antennæ imperfect in the type.

Type :—

STIBOMORPHA DECORATA, *sp. n.*

Wings above smoky-brown; primaries with basal half (excepting the costal and interno-median areas) inclining to tawny; an indefinite, irregularly sinuated, post-median transverse line, limiting the tawny basal area, and bordered externally by a narrow, irregular, interrupted, and externally diffused, bright tawny edging; a sub-apical blind black spot; outer margin broadly blackish brown; fringe whitey-brown, spotted with dark brown: secondaries, basal area clothed with tawny hairs; three or four semicircular bright tawny spots, forming a straight sub-marginal band; outer margin and fringe as in primaries: body reddish-brown.

Wings below beautifully variegated; primaries orange-tawny, the costal apex and a macular post-median streak (bounding the transverse line mentioned above) bright creamy-ochreous; centre of costa and external angle dusky; a large bipupillated sub-apical ocellus, with ochreous iris; a sub-marginal dusky brown line; margin, excepting at external angle, silvery-white, edged internally with blackish; fringe as above: secondaries bright creamy-ochreous; the abdominal area lilacine-grey, becoming greenish at base; a broad, central, oblique, irregularly zig-zag band, brown, speckled with bright ochreous, its external margin deeply and irregularly excised and edged with silvery-white, bounded externally by a brown nebula, enclosing five ocelloid spots, the second to fourth complete, black, white-pupilled, and with ochreous irides; a sub-marginal irregular brown band, irrorated with grey and ochreous scales, and edged internally with black; outer margin silvery-white; fringe as above: body dirty whitish.

Expanse of wings, 2 inches.

Hab.: high mountains of Santiago (captured by E. C. Reed, Esq.).

Mr. Reed took three examples of this well-marked and charming form, and I have to thank him for giving me permission to describe it, and for presenting me with a specimen of it.

British Museum:

January, 1874.

DESCRIPTIONS OF FOUR NEW AFRICAN BUTTERFLIES.

BY W. C. HEWITSON, F.L.S.

NEPTIS NICOMEDES.

Upper-side: ♂. Dark brown. Both wings crossed at the middle by a broad band of white (oblique on the anterior wing, transverse on the posterior), followed by a band of indistinct grey spots, and by three sub-marginal linear bands of white; the inner band (which is most distinct on the anterior wing) broken into spots. Anterior wing with two white spots within the cell—one near the base minute, the other lunular; a bifid white spot on the middle of the inner margin.

Under-side: as above, except that it is paler, and that the posterior wing has the base of the costal margin broadly white, and a linear white spot below it.

Exp. $1\frac{6}{10}$ inch.

Hab.: Angola (Rogers).

Very distinct from any other species.

NEPTIS NICOTELES.

Upper-side: ♀. Dark brown. Anterior wing with an unbroken triangular band from the base to the middle, two large spots beyond this—one near the costal margin trifold, the other below this bifid, followed by four transverse linear bands; a bifid spot beyond the middle of the inner margin, and below this a sagittate spot, all white. Posterior wing crossed before the middle by a broad band, followed by a very indistinct band, and three sub-marginal linear bands, all white.

Under-side: as above, except that the sub-marginal bands are much more distinct, and that the posterior wing has a sub-basal white band.

Exp. $1\frac{1}{2}$ inch.

Hab.: Angola (Rogers).

Differs from *N. Melicerta* in not having either of the small white spots which follow the basal band on the anterior wing of that species, and in having the two larger spots unbroken by the nervures.

NEPTIS NEBRODES.

Upper-side: ♀. Dark brown. Both wings crossed near the middle by a broad band of white; broken on the anterior wing into seven distinct spots, one of which on the inner margin is bifid, followed on both wings by four linear bands (two of which are broken into spots), all white. Anterior wing with a white band from the base to the middle, indented, but not divided at its point; two minute spots near the costal margin above this.

Under-side: as above, except that the sub-marginal bands are very much broader, that there are *three spots from the costal margin* before its middle, that there is a small white spot in the indentation of the basal band, and that the posterior wing has two transverse bands near the base.

Exp. $2\frac{6}{10}$ inch.

Hab.: Angola (Rogers).

Much like *N. Melicerta*, but twice its size.

HYPOLYCENA BUXTONI.

Upper-side: dark brown. Anterior wing with a large, central, white spot, marked at the end of the cell by a black line, and beyond it by a band of the same colour. Posterior wing with two tails; the basal half grey-brown bordered outwardly with black, the outer half white, crossed by two sub-marginal bands of black; the lobe, and a spot at the base of the tails, black.

Under-side: white. Anterior wing crossed at the end of the cell by a linear spot, and beyond the middle by a linear band, both rufous, the outer margin also rufous. Posterior wing crossed at the middle by a linear rufous band rounded, not angular, near the anal angle; the lobe black, irrorated with silvery-blue; the spot at the base of the tails crowned with orange.

Exp. $1\frac{5}{10}$ inch. *Hab.*: South Africa (River Asuto, Buxton).

For the species which I have named after him, and for several species of *Lycenidæ* which are new to me, I am indebted to Mr. Buxton, who has made several excursions to South Africa for the pleasure of seeing these things in life.

Oatlands, Weybridge: January, 1874.

DESCRIPTIONS OF A NEW GENUS AND TWO NEW SPECIES OF
EUROPEAN *OXYURA*.

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

FAM. *DRYINIDES*.

Genus *DRYINUS*, Latr.

DRYINUS CORSICUS, n. sp.

D. niger, *antennis testaceis, nigro-annulatis, apice albido; alis hyalinis, partim nigro-nervosis, fascia ante apicem fusca; femoribus nigris, apice tibiisque piceo-rufis; tarsis testaceis.* ♀. *Long. 3; alar. exp. 3 lin.*

Antennæ tricolorous in the living insect, joints 1—5 testaceous, gradually growing darker towards the 5th, 6—9 black, the last joint formerly white but now yellowish. Body entirely black, hardly shining, except upon the abdomen. Wings hyaline, with a lacteous tinge; the three longitudinal nervures partly, before the middle, the two recurrent nervures which connect them, as well as the ramus post-marginalis (radius), fuscous; the other nervures colourless; stigma white, with a dark apex; a single broad band of fuscous crosses the wing beyond the middle.

Hab. : Corsica.

I have compared this insect with the description of *D. formicarius*, Latr., and with a drawing which I copied from one lent me by Prof. Westwood, taken from Latreille's type specimen. Also with Westwood's description of *Campylonyx ampuliciformis* (Proc. Zool. Soc., 1835, p. 52). Also with the description and figure of *Chelothelius gryps*, Reinh. (Berl. ent. Zeit., 1863, p. 409). And lastly with my specimen of *D. tarraconensis*, described in this Magazine (iv, p. 203). So far as I can ascertain, these are all the species that have been published; and the present individual agrees with none of them. It is nearest to *D. tarraconensis*, but, besides certain differences of colour, it has structural characters which make it abundantly distinct.

The legs are much shorter, the femora especially being scarcely half the relative length of those of *tarraconensis*, and more clavate. The joints of the antennæ, the prothorax, and every part of the body to which the idea of length can be applied, are proportionally shorter; the general effect being the production of a stouter and more compact insect. The punctuation and rugulosity of the head are considerably coarser; and there is no medial frontal line. The scutellum is smooth and shining, instead of being marked with striæ and rugosities. The neururation of the wings offers slight differences, which it would take much time to describe. The wing itself has only one dark fascia instead of two, although the nervures are dyed in two places; and the membrane shows a different texture, and a milky hue not to be found in *tarraconensis*. I remember that the tips of the antennæ, and I

think also the hind tarsi, were conspicuously white when the insect was alive; these are now tarnished with yellow. The species of *Dryinus* are less active than *Gonatopus*; they carry their wings folded, like a small *Pompilus*, and appear disinclined to take flight. The present species was found in a hot sandy place of the Campoloro, near Ajaccio, at the roots of herbage, in July, 1870. Though I visited the spot daily for a long time, I could discover no more, nor has the ♂ of this genus or of *Gonatopus* ever occurred to any one.

FAM. SCELIONIDES.

ALERIA, n. g.

Mandibulæ dentatæ. Antennæ prope os insertæ, 12-articulatæ (exempto radiculo). Scapus articulis cæteris simul sumptis vix brevior, apicem versus incrassatus, basi incurvatus; flagellum articulo 3^o 2^o longiore, 2^o et 3^o minoribus, obconicis, 4^o—11^{um} sensim incrassatis, breviter cylindricis, clavam elongatam constituentibus. Ocelli inter se distantes, uno utrinque ad oculorum marginem anteriorem posito; tertius medius. Thorax cum scutello valde elevatus, rotundatus, rugoso-reticulatus; parapsidum suturæ obsoletæ; metathorax brevis, depressus, utrinque marginatus. Abdomen sessile, depressum, longitudinaliter striolatum, capite cum thorace longius, apice attenuato; segmentum tertium maximum, segmentum secundum basi late fortiter impressum. Tibiæ unicalcaratæ, anticæ calcaribus elongatis, falcatis. Alæ ramo stigmatico, ramo postmarginali instructæ; ramus marginalis nullus; ramus stigmaticus incrassatus; ramus postmarginalis completus, cellulam elongatam cultriformem versus alæ apicem evehens.

This genus should be interpolated between *Telenomus* and *Anteris* in Förster's table of the *Scelionides* (Hym. Stud. ii, 101). The division in that table marked k. has no genus assigned to it, and includes the present insect, which is consequently distinguished from its allies by having the *ramus stigmaticus* (Först.) or *cubitus* (of English writers) thickened at the base, so as to resemble a stigma. The characters above given are carefully selected with reference to the other genera, and are no more than is needful. Few words are seldom sufficient to elucidate a genus of this tribe.

ALERIA FLAVIBARBIS, n. sp.

A. niger, subopacus, antennarum scapo pedibusque testaceis, coxis nigris; capite, thorace, scutello, rugoso-reticulatis; abdomine supra longitudinaliter striato, segmentorum 1—4 marginibus posticis lævissimis; alis infumatis, nervis fuscis; capite et thorace partim pilis aureis brevibus squamiformibus adpressis obsitis; terebra recondita.

♀. Long. 2½; alar. exp. 3 lin.

Hab. : Corsica.

The radicle of the antennæ is testaceous, the scape somewhat darker towards the tip; the femora are also slightly infuscated. Viewed sideways, the head and

thorax are more than thrice as high as the flattened abdomen.* The cheeks behind the eyes are strongly bearded with pale golden, stiff, adpressed bristles, resembling scales; the hairs on other parts of the body are of the same colour, but more erect: and on the sides and raised edges of the metathorax is a covering of fine golden pubescence.

Facies of *Scelio* and *Sparasion*, though the insect is very distinct from those genera.

Whether this genus is to be referred to Förster's section h, or to hh, depends upon the more or less sessile attachment of the abdomen. I have so few of the allied genera that I am unable to compare it, except with *Sparasion* and *Scelio*, both of which have the base of the abdomen wider. I therefore prefer to associate it with section h, "Der Hinterleib nicht mit breiter Basis sitzend" (Hym. Stud. ii, 101). Section hh, *Sparasion*, &c., is described as having the abdomen "mit breiter Basis sitzend." The distinction seems a very slight one, dependent upon the value of a merely relative term. In any case, however, the present genus is new, and its precise situation in the series is a matter of less importance.

Lastingham, Pickering :
December, 1873.

Note on the occurrence near Manchester of Hylurgus ligniperda, Tomicus stenographus, and T. nigritus.—Mr. Joseph Chappell, of Hulme, when recently sending me a few examples of *Tomicus stenographus*,—a gigantic species, which I believe is not generally considered to be undoubtedly British,—at the same time communicated to me some specimens of two other members of the *Xylophaga* found with it, and which I refer to *Hylurgus ligniperda*, Fab., and (with some reserve) *Tomicus nigritus*, Gyll., Thoms. The former of these would, if proved to be British, add another genus to our list (as our other so-called *Hylurgi* are to be referred to *Blastophagus* or *Dendroctonus*, *Xylechinus* and *Cissophagus*), and the latter has been recorded as British by Dr. Sharp (Ent. Mo. Mag., vi, p. 256) on the authority of a single specimen from Inverness-shire. Mr. Chappell tells me that these insects were found at Dukinfield, under the bark of some trees of *Pinus sylvestris*, brought into that neighbourhood to make props for a coal mine. These trees were of a good size, from 10 to 15 inches diameter at the base, and varying in length from 15 to 20 feet. Particular enquiry has been made both by himself and Mr. Ward, a Lepidopterist residing at Dukinfield, as to the place from whence these trees came, and both those gentlemen were told it was Scotland, and also that the miners did not like foreign timber, as it did not last so long as the Scotch. It is not to be supposed that such an "embarras de richesses" can be unreservedly accepted on such slight evidence; but, as all the insects, from their distribution, are not unlikely to be found in this country, and two of them are already on our list, it may be as well to record these captures. The *Hylurgus* is a very fine looking beetle for the group, over $2\frac{1}{2}$ lines in length; it somewhat recalls *Hylastes cunicularius*, and

does not superficially at all resemble its ally, the common *Blastophagus piniperda*, having a much longer thorax, and being of more cylindrical shape; its elytra are duller, being very closely rugulose asperated, with thick and conspicuous yellow hairs behind. The *Tomicus* is very closely allied to *T. laricis*, but is smaller, with decidedly outwardly curved (instead of straight) sutures to the joints of the club of its antennæ, rather paler pubescence, somewhat less coarsely punctured striæ to its elytra, of which the retuse apex is smaller, and the denticulation rather different, and narrower front tibiæ. The immature material at my disposal is scarcely sufficient for a decided opinion upon this insect.—E. C. RYE, Parkfield, Putney, S.W.: January, 1874.

Note concerning Acanthaclisis americana, Drury.—At the recent sale of Mr. Norris's collection, I obtained the few Neuropterous insects therein contained. They were, of course, very old, and for the most part in very bad condition, still there were several species, principally American and African, that are now never sent by collectors, and in fact known only in a few old collections. I retained only the best specimens, leaving the others behind; greatly to my regret, for there is scarcely a possibility of doubt, as I afterwards discovered, that most of Drury's types of the *Neuroptera* figured in his 'Exotic Entomology,' were contained in the collection. Through the means of a marked catalogue in Prof. Westwood's possession, I find that Haworth purchased most of Drury's *Neuroptera*: into whose hands they passed at the sale of Haworth's collection I have not been able to trace, but several insects in the Norris collection bore the characteristic Haworthian triangular labels, with his handwriting, and possibly Mr. Norris obtained them direct. In scarcely any instance is there a locality label. Among others—*e. g.*, *Palæmnema Paulina* and *Heterina Titia*—is what I have no doubt is the type of *Myrmeleon americanum*, ♂, Drury (agreeing entirely with his figure), a species little understood. I have seen nothing exactly like it, but am not certain that the widely distributed *Acanthaclisis fallax*, Rambur, is really distinct therefrom. The wings are much more marked with fuscous than in any *fallax* yet seen by me, and the broad median dark band on the pronotum is entire, whereas in *fallax* it appears to be always longitudinally divided, or forked, anteriorly. Although *A. fallax* is often sent over, the ♂ appears to be rarely observed, and I have only examined one in the British Museum collection. In the markings of the pronotum, and in general appearance, it does not differ from the ♀, nor do the anal appendages differ in structure from those of the, as I believe, type of *americana*. The expanse of wings is about 5 inches 1 line (equalling about 127 millimètres). The locality given by Drury is New York; but it is more likely to have been taken there from one of the Southern States. Burmeister (Handbuch, ii, p. 996) has a species which he refers to *americana* (from South Carolina), but it is placed in the section (of *Myrmeleon*) with geniculate spurs, though this is likely to be an error. According to Hagen (N. Amer. Neurop., p. 223), Burmeister's type is a ♀, and considerably smaller (not 'larger,' an obvious misprint in the description), expanding only 96 millimètres. I incidentally mentioned above, *Heterina Titia*, Drury, as forming part of the collection. It is a ♂, and agrees precisely with Drury's figure in having a somewhat rounded pale space before the *pterostigma* in the hind-wings, possibly a scarce form of this variable species, for it appears to be known to De Selys-Longchamps only from the figure, further evidence that the insects are, in all probability, the actual types.—R. M'LACHLAN, Lewisham: October 4th, 1873.

Note on the occurrence in the North of England of Cixius contaminatus, Germ., and Issus coleoptratus, Fab.—At p. 190 of vol. vii of this Magazine, it is stated with regard to *Cixius contaminatus*, that “the varieties appear to be confined to the “south.” This species is common and very variable in the district around Manchester (one of the worst in the kingdom for *Homoptera*). I captured the variety *albicincta* near Bowdon on the 22nd of May, 1869.

At p. 240 of the same vol., it is stated with regard to *Issus coleoptratus* and *Cercopis vulnerata*, that “both of these insects appear to belong exclusively to the “south,” &c. I captured *Issus coleoptratus* at Llanferis, Denbighshire, towards the end of October, 1860; also at Dove Dale, Derbyshire, on the 18th of July, 1868. I have also received it from Mr. Hodgkinson, of Preston, taken by him in his usual collecting ground.—B. COOKE, Bowdon: *January, 1874.*

Note on Apanteles placidus, Hal.—Whilst at Loch Hourn, in June, 1872, I discovered, attached to rushes, in close proximity to each other, two large egg-bags of a spider, filled with the cocoons of the above species. I extracted from the cocoons some of the larvæ, which were of the usual form, and of a reddish-orange colour. The pupæ were of the same colour, gradually becoming black as the enclosed insects approached the perfect state, which they assumed three weeks after being formed, emerging in batches of four or five at a time. I did not count how many were in each bag, but it was far short of what the number of spiders' eggs must have been, yet not one egg escaped destruction.—P. CAMERON, JUN., 136, West Graham Street, Glasgow: *8th January, 1874.*

Four species of Nematus new to Britain.—The following species have not, I believe, been recorded as British:—

Nematus croceus, Fallén, Act. Holm., 1808, 122, 65; Thomson, Hym. Scand., i, 149; = *N. fulvus*, Hartig, Blattw., 194.—Of this species I have taken single specimens at Glenelg, Rannoch, and near Glasgow, in June, among willows.

Mr. Smith informs me that *Nematus miliaris*, Pz., which Thomson gives doubtfully as a synonym of *croceus*, is the same as the *N. viridis* of Stephens, which is clearly identical with *N. virescens*, Hart. If Panzer's name be inadmissible through the ambiguity of the description, Stephens' name will require to be adopted, as it has priority over *virescens*. The species becomes of a pale straw colour with age, which circumstance has probably led to the confusion.

Nematus obductus, (Klug) Hartig, Blattw., 201; Thomson, Hym. Scand., i, 114.—A few specimens have been taken near Glasgow, by myself, in June, usually by sweeping grass.

Nematus pallipes, Fallén, Act. Holm., 1808, 110, 48; Thomson, Hym. Scand., i, 97.—Somewhat to my surprise, I found on the mountains behind Rannoch, at a height of about 3000 feet, some empty cocoons of a *Nematus*, among moss and under stones, in a very bleak and exposed situation, no vegetation other than moss and stunted grass being near; knowing that the larvæ would not then (June) be out, I instituted a search for the unknown maker, and succeeded, with some difficulty, in capturing two specimens (♂) of *Nematus pallipes*, close to some of the cocoons. Possibly more might have been found, but the weather was wet and stormy, which

prevented this. I have little doubt that the cocoons appertained to this species, and that the larvæ fed on grass, like many of the same genus. A few specimens have also been taken by Dr. Buchanan White at Braemar.

This is not the *Nematus pallipes* of St. Fargeau and Stephens.

Nematus mollis, (Klug) Hartig, Blattw., 201; Thomson, Hym. Scand., i. 98.—Of this species I have seen a single specimen, which was taken by Dr. White at Braemar.—ID.

Notodonta bicolora in Ireland.—As Mr. Birchall expresses a doubt as to *N. bicolora* being an Irish insect, I can abundantly satisfy him respecting it. First of all, Bouchard's captures were no doubt genuine, as a lady asked my opinion about it at the time, saying he wanted £4 for a specimen.* Then Turner found wings in a spider's web; and after that, John Hardy, Jun., of Manchester, took a specimen which I saw on his return from Killarney. The year following he beat a larva into his net off birch, whilst looking for beetles: he told me that he expected he had got a larva of *bicolora*, and this proved correct, and he brought me the specimen to look at alive; he found another larva crawling across the roads on Denis Island, Killarney, which he did not rear. Mr. Hardy also beat the larvæ of *Thecla rubi* off birch at the same time; this Mr. Stainton seems to question, but I am quite right in this respect, as I have Hardy's letter on the subject. Hardy writes me that he has bred *Thecla rubi* from *Salix fusca*, bilberry and birch, several times, and that he has found the pupa on holly; but as he never found the larva on the last named plant, he thinks it may have crawled thither to change. With one exception, I have always found *T. rubi* amongst birch.—J. B. HODGKINSON, 15, Spring Bank, Preston: December 12th, 1873.

Notodonta bicolora in Ireland.—Mr. Birchall, when doubting the authenticity of this species as Irish, was probably not aware of my having both captured and bred it, under the following circumstances. In the year 1867, I captured a ♂ perfect insect, and the next season took a larva, from which, in 1869, I reared a ♀ (which I remember showing alive to Mr. Hodgkinson, of Preston): both the ♂ and the larva were taken not more than one mile from the Muckcross Hotel; and I have also found wings of old specimens in spider's web there. These two specimens are now in the collection of Mr. Alfred Beaumont, of New House, Huddersfield, who I am quite sure will give any information about them, and show them to any one. He became possessed of them curiously enough, by drawing the number representing this insect in two consecutive years, on each occasion of my so distributing my captures among my subscribers. I was at Killarney for two years, and worked hard during each season, but never got more than these two moths. I know, also, that the late Mr. C Turner worked hard day and night for this insect at Killarney, though he never got it; and any one who remembers his shrewdness, will feel sure he would not have exerted himself to such an extent unless convinced the species really occurred there. I firmly believe that the late Mr. Bouchard also took the insect there, as I stayed at the house where he stopped, and the master of it told me that Bouchard came in one day much excited, saying he had taken *bicolora*. The master of the house and others called the insect "Mychel Lorum," and used to ask me in joke if I had taken it; when I took the ♂, I showed it to him, and he recognized it instantly.—J. RAY HARDY, 118, Embden Street, Hulme, Manchester: January, 1874.

* The price of *Notodonta bicolora*, according to continental catalogues, varies from about sixpence to one shilling. Without expressing any opinion on the point in question, we must admit our utter inability to comprehend our correspondent's argument.—EDS.

Notodonta bicolora in Ireland.—I am greatly obliged to my friend, Mr. Stevens, for defending the memory of the late P. Bouchard. I knew the man somewhat intimately for many years (in fact, he was my instructor in entomology), and I do not believe that there exists a more honest or truthful entomologist, be he gentle or simple. The fact that *N. bicolora* has not been taken by other collectors proves nothing, for numbers of rare insects disappear for years, or turn up once in a lifetime. Passing over such instances as *Geometra smaragdaria*, *Pachnobia alpina*, *Noctua sobrina* (lately captured by the Messrs. Hutchinson on the very line of trees where it was taken by Bouchard some dozen years ago), I would but mention *Eupithecia egenaria*, taken by Miss Sarah Hutchinson at Loughton, June 12th, 1869, on the occasion of her solitary visit to the forest, and now in my possession. I suppose, had an unfortunate dealer caught this insect, its foreign origin would have been considered by many as certain.—BATTERSHELL GILL, 9, Cambridge Terrace, Regent's Park : January, 1874.

Description of the larva, &c., of Ephestia elutella.—After two unsuccessful attempts to rear the larva of this species to the perfect insect, for verification of my figures, I have at length been successful, thanks to the unwearied kindness of Mr. Evan John in supplying me again and again with larvæ.

Those from which the moths were bred arrived on December 23rd, 1872, and were feeding on dog-biscuit, eating out little cavities or cells, and masking their operations with a web covered with frass of the same colour as the biscuit itself.

Two larvæ of the same date were found on an old thick cloth coat, and the piece of blackish cloth on which they were was cut out and sent with them; however, on the 28th, I noticed on turning out these two larvæ from the webs they had partly covered themselves with, that the cloth seemed to be but little gnawed, I therefore placed some crumbs of biscuit beneath the bit of cloth, so as to be in contact with the larvæ, and in the course of the following day I found they were spinning fresh habitations, and uniting some of the biscuit to the cloth.

The other larvæ after examination remained from this time in their cells unmolested, and apparently content, but in the course of March, 1873, I found two or three wandering about the top of their cage as though in quest of other quarters; not liking to touch the biscuit, I now twisted up some soft paper into little hollow cones, and put them into the cage, and this provision proved suitable, for I found eventually that all the larvæ had spun up in them. The moths came forth from July the 7th to 11th.

The full-grown larva is little more than three-eighths of an inch in length, cylindrical, not very stout, tapering a little from the third segment towards the head, and a little on the two hinder segments; it is of a pale flesh colour, without gloss, excepting on the head, the plate behind it, and the anal plate, which are shining and reddish-brown; the tubercular dots are similarly coloured, and though very minute are yet distinct; on the side of the third and of the twelfth segment is an ocellated spot of blackish-brown with whitish centre; the plate on the second segment is divided down the back by a thread of flesh colour, otherwise it is without any line. In the immature larva the plates are darker brown, and the body almost colourless, of wax-like texture of skin.

The pupa is nearly four lines in length, thickest in the middle, but not stout,

the tail rather rounded, pale brown in colour, the head darker brown; it lies in a whitish silken hammock, a little longer than itself.—WM. BUCKLER, Emsworth: December, 1873.

Description of the larva, &c., of Rhodophaea marmorea.—On the 23rd of May, 1873, Mr. J. B. Hodgkinson, of Preston, kindly sent me a larva of this species, which, with more than a dozen others, he had obtained by beating from dwarfed and stunted miserable-looking sloe bushes, scattered, over the side of Whitbarrow, in Westmoreland.

Mr. Hodgkinson informs me that he can always tell at a glance whether this larva is on a bush, and that he finds invariably the principal indications of its presence to be the stunted appearance combined with the circumstance of sheeps'-wool sticking in the twigs.

The individual sent to me arrived in a loosely spun web on the stem of a twig of dwarf sloe, and I noticed that each time I changed its food it spun for itself a fresh web uniting some of the leaves together; when disturbed it was nimble and eager to escape, but invariably spun a thread while walking as a measure of security for regaining its place on a stem. It fed on the sloe leaves, though somewhat sparingly, and on June 1st I found it had spun, during the previous night, a cocoon of brownish-grey silk, attached to the end of the hammock-like web in which it had been living and to the stem and two or three leaves of its food, the outside of it covered with leaf gnawings and frass; it did not become a pupa till the 6th, and the moth came forth on July 7th.

This larva was five-eighths of an inch in length, moderately slender, nearly of equal size throughout, the last two segments being a little tapered, and the head, though full and with rounded lobes, rather less than the second segment; the ventral legs moderately developed, but placed much beneath the body; each segment beyond the fourth sub-divided by one transverse wrinkle, which, though slight on the back, was deep on the side, unless when the head and front segments were thrown back, forming a concave line above, when these wrinkles would appear deeply indented as well as the segmental divisions; but when the body was bent downwards, giving a convex outline to the back, these wrinkles disappeared; the sides were deeply wrinkled and dimpled, with an inflated sub-spiracular ridge almost linear in its course. The colour was a very dark chocolate-brown, the skin being without any gloss; the head and plate behind it were of a dingy, rusty, red colour, the former marked with a thick crescent of black on the crown of each lobe, the latter blotched with black, and both shining; the tubercular dots were also polished, most of them being very small, each bearing a fine hair; in the sub-dorsal region of the third and again of the twelfth segment was an ocellated spot of flesh colour, with minute black centre bearing a hair; the tip of the anal segment a little paler than the rest of the colouring, and rather shining; the spiracles were small, circular, and flesh coloured; the anterior legs marked with black; the ventral legs dingy flesh colour, tipped with dark brown hooks.

The deep reddish-brown pupa, three and a quarter lines in length, was of moderate stoutness and of the usual contour, but with the abdomen terminating in a knob, furnished with three extremely minute, curved-tipped bristles.—ID.

Reviews.

THE OBJECT AND METHOD OF ZOOLOGICAL NOMENCLATURE; by DAVID SHARP. 8vo, pp. 1—39. London, E. W. Janson, and Williams and Norgate; 1873.

We live in times of reaction, but never dreamed of one so severe as to compel us to call the well-known *Ascalaphus macaronius* (one of the *Neuroptera*) by the name under which it was first described by Scopoli, viz., *Papilio macaronius*; yet this is what Dr. Sharp would have us do. The main principle he proposes is that "the correct name of a species is the earliest two words that were first given in combination to it, as a specific name" (p. 38), and he considers this first name (generic and trivial in combination) sacred, although the classifier is at liberty to place against it the modern generic term that seems best suited to his ideas. Therefore, the mere collector has the satisfaction of a thoroughly unchangeable name, whereas the unhappy student must adopt a trinomial nomenclature. We believe the foregoing sketch gives a correct view of what appears to be the aim of our author. Dr. Sharp is deservedly obtaining a world-wide reputation as a sound and conscientious entomologist, with a knowledge of differences and affinities in special groups of *Coleoptera* second to none; but, it seems to us that, this pamphlet will not increase his reputation as a naturalist. It was possibly written as an alternative or relief from more severe studies; but, remembering that, at p. 254 of vol. ix of this Magazine, the author proposed to retain unchanged the termination of the specific (or trivial) name of a species when it be thought advisable to transfer it to another genus of different gender, it looks as if he were now seeking to establish that proposition in another way. The reception accorded to the original idea was not satisfactory, and the present plan will probably meet with equal condemnation. The appearance of this pamphlet is additionally to be regretted, inasmuch as the writing of it must, to the detriment of science, have prevented the author from doing good work in the departments he so ably represents. However, the elimination of a few pages leaves much to interest and instruct, as the general exposition of the subject of nomenclature is both sound and clear. With regard to the doings of the 'purists,' we will only say that Dr. Sharp seems unfortunate in his comparison of the notorious *Amphionycha knownothing* (which he now proposes to adopt unchanged to the letter) with such names as *Carabus Stschlegovi*, &c. We submit there is nothing whatever in common in the examples cited, and should rather like to hear a Russian entomologist try to pronounce "*Sciaphila Colquhounana*."

ON THE ORIGIN AND METAMORPHOSES OF INSECTS; by SIR JOHN LUBBOCK, BART., M.P., F.R.S. Small 8vo, pp. 1—108. London, Macmillan and Co.; 1874.

Readers of 'Nature' will be already acquainted with the contents of this handy little volume, now republished in a separate form. Although professing to treat only upon insects, the exigencies of the subject have led the author into somewhat lengthy considerations of the metamorphoses of animals much lower in the scale, and, in fact, the volume treats on these changes as observed in the *Invertebrata*. It gives a clear and concise view of the subject as elucidated up to the present date, and the numerous outline wood-cuts will greatly assist the reader. Considering that the subjects of entomology, and even of metamorphoses in its more popularly accepted sense, are yet themselves quite in embryo, we refrain from any comments upon the opinions of the author, and of those who have written on the same questions, further than to remark that much of what has hitherto been given forth by naturalists of the advanced (perhaps sometimes too advanced) school, is,

of necessity, purely speculative. We do not find in this work any special tendency to originate theories and suppose facts, and in this we rejoice; for, with the firm conviction that the evolution theory has a groundwork of great truths, we regret, nevertheless, to find that its too zealous advocates often do it more injury than is possible to be done by its most violent opponents. Putting theory on one side, there is enough of facts in this volume to astonish even the advanced naturalist.

HAGGERSTON ENTOMOLOGICAL SOCIETY.—The Sixth Annual Exhibition of this Society was held at their rooms, 10, Brownlow Street, Dalston, on the evenings of Thursday and Friday, November 13th and 14th. The insects exhibited were quite up to the average. Among the rarer species were *Sesia andreniformis*, exhibited by Mr. Bryant, taken at Greenhithe; *Leucania albipuncta*, shown by both Mr. Bryant and Mr. Oldham; *Xylina conformis* and *Nonagria brevilinea*, by Mr. E. G. Meek; *Pachetra leucophæa* and *Leucania l-album*, by Mr. Stevens; *Dianthæcia irregularis* and *Zygæna meliloti*, by Mr. Downing; *Depressaria pallorella*, taken in Headley Lane, by Mr. Machin; a bred series of *Hypercallia Christiernana*, together with the pupæ cases, by Mr. J. A. Clarke; *Erastria venustula*, by Mr. Harper; and numerous varieties of more common *Lepidoptera*. Mr. Skertchley exhibited two fine cases of *Rhopalocera* from Ashanti, taken by himself. Several microscopes were placed in one of the rooms, and afforded entertainment and instruction to many of the visitors. —R. G. BERRY, Secretary, Haggerston Entomological Society.

ENTOMOLOGICAL SOCIETY OF LONDON, 5th January, 1874.—Prof. WESTWOOD, President, in the Chair.

Capt. G. Cockle, of 9, Bolton Gardens, was elected a Member.

Mr. Meldola exhibited specimens of magnified photographs of entomological preparations, taken from the objects themselves with the assistance of a dark box or *camera obscura*.

Mr. Butler made some remarks on a paper by Mr. C. V. Riley, published in the Journal of the St. Louis Academy of Science, concerning two species of *Apatura* from N. America, noticed by Mr. Riley as *A. Hyrse*, Fab., and *A. Lycaon*, Fab. Mr. Butler thought these were in reality *A. Alicia*, Edwards.

Mr. McLachlan called attention to a paper in the last part of the *Annales Soc. Ent. France* by M. Bar and Dr. Laboulbène, on a species of *Bombycidae* closely related to the Tiger-moths, described and figured by M. Bar as *Palustra Laboulbenei*, and of very extraordinary habits, the larva being aquatic, living in the canals of the sugar plantations in Cayenne, and feeding upon an aquatic plant. The hairy larva had all the form usual for the group, and breathed by means of very small spiracles, a supply of air being apparently entangled in its hairs. The cocoons were joined together in little masses floating on the surface of the water.

Mr. McLachlan also stated that M. Ernest Olivier, of Moulins, France, grandson of the old entomologist of the same name, desired him to make known to the Society that he possessed many of the types of *Coleoptera* described by his grandfather, and would be happy to lend them to specialists working at particular groups.

Dr. Sharp communicated a paper on the *Pselaphidae* and *Scydmanidae* of Japan, collected by Mr. George Lewis; there were 24 species of the former and 5 of the latter.

Mr. F. Smith read a Monograph of the genus *Xylocopa*, enumerating 123 species.

NATURAL HISTORY OF *LITHOSIA QUADRA*.

BY WILLIAM BUCKLER.

On the 30th July, 1872, Mr. W. H. Harwood kindly sent me eggs of this species, laid close together on the side of a chip box; and he supplemented his gift by a few more which came from a correspondent of his on the 8th August, laid in clusters: in both instances some of the larvæ hatched in transit, and all of them were out by the 13th.

The egg is semi-spherical, most minutely pitted on its surface; of a rather glaucous bright green colour, turning olive, and again dark brown just before hatching; a large hole is eaten by the escaping larva in the upper part of the shell, which looks quite white when empty.

The young larva for a day or two is rather gelatinous looking, of a dirty whitish tint, but soon acquiring an internal pinkish tinge, showing a brown streak within the thoracic segments, the head being dark brown, and the body bearing some rather long dirty whitish hairs. In about ten days the first moult takes place, when, as is the case with other species of *Lithosia*, so much of the characteristic marking and colouring of the mature larva is assumed, as suffices even then to distinguish it from its congeners; the whole larva now becomes tougher in texture, and the back becomes yellowish, prettily outlined with black, and with an interrupting spot on the eighth segment.

Unfortunately, I cannot give an account of the appearance during hibernation; both the young larvæ referred to above, and those also which on two other occasions I received from other friends, having died whilst no more than a quarter of an inch in length. However, I think that the smallest of the three I am now about to describe had, when first sent to me, scarcely increased in bulk since hibernation.

Mr. Harwood, still most kindly mindful to help me with this species, sent me three young larvæ of varying size, which he had beaten from oak trees near Colchester, and at St. Osyth, on the 10th, 16th, and 17th of June, 1873. These were kept separate, and their progress was as follows:—No. 1, June 11th; length, three-quarters of an inch, moulted 19th, increased to one and three-eighths of an inch, spun up July 1st; imago 21st, a male. No. 2, June 18th; length, five-eighths of an inch, moulted 21st, increased to three-quarters of an inch, moulted 30th, increased to one and three-eighths of an inch, spun up July 12th; imago August 2nd, a male. No. 3, June 18th; length, half an inch, increased to five-eighths of an inch, moulted 24th,

increased to three-quarters of an inch, moulted July 3rd, increased to nearly one inch, moulted July 14th, increased to one and a half inches or a little more, spun up 27th; imago August 14th, a female. Each of these larvæ, on arrival, possessed all the characters and colours that distinguished them through their changes of skin to the adult state presently to be described. The food supplied to them consisted of various lichens from oak trees, and at first a few leaves also, as I noticed the oak leaves that were sent to me with each larva had been nibbled a little on the journey; I also gave them *Lichen canina*, for which they soon showed such a decided preference that it became almost their only nourishment; when disturbed, they were very lively and active, running quickly over any surface, yet clinging with a firm foot-hold when they choose; altogether, a great quantity of food was devoured by them, and at times they seem to eat quite voraciously, always on the dark cuticle of the lichen, not seeming to care for the pale fleshy substance beneath. When about to moult, the colours became less vivid and the details less distinct; at such times the larva would leave its food for the leno cover of its cage, and there spin a patch of silk, and fix itself upon it; then there seemed to ensue some operation of denuding itself of most of its hairs, but this process I was in every instance unable to witness, it being always effected during the night, generally the first night after the larva had taken its position on the silk; most of the hairs left remaining were on the second and third segments, nearly all the others appeared to have been bitten off close to the skin, excepting some few mere stumps of various lengths left along the sides; the actual moult would take place either on the first, second, or third night after this loss of hair, the minimum time with the smallest, and maximum with the largest larva; after moulting, the first meal was evidently made on the cast skin, as no trace of it could be found beyond the head piece, in every instance save one, when a small fragment of skin remained: this breakfast on its old skin by a hairy larva was to me very suprising; it seemed, however, to act beneficially, for the next meal on lichen would be a hearty one. I found that after each larva had attained its greatest length, it began gradually to shorten for three or four days before spinning its cocoon, although still occasionally feeding, sometimes even ravenously, during this period.

The full-grown larva, as I have said, varied from one and three-eighths of an inch to nearly one and five-eighths of an inch in length; was moderately stout in proportion, somewhat cylindrical in figure, tapered a little from the fourth segment to the head, also from

the eleventh to the anal extremity; the thoracic segments deeply wrinkled, the others plump and separated by well defined divisions; the ventral legs long and well developed, the anal pair long and extended behind beyond the end of the body; each segment with five prominent wart-like tubercles on either side, forming through the length of the body as many longitudinal rows; the two upper rows nearly close together along the sub-dorsal region, the others at equal distances along the side, the lowest almost on the belly, all of them thickly furnished with long radiating hairs curved a little upwards at their tips.

The head is black and lustrous, the ground colour of the back a bright primrose-yellow, which appears but little on the second segment, being there merely an edging and fine dorsal division to a blackish-grey mark; this yellow is a little more seen on the third and fourth segments, where the large pairs of tubercles in front are black, the smaller ones behind them bright orange, the space between these on the fourth segment transversely barred with black, which more or less tinges the dorsal stripe, and produces a conspicuous central triangular or cruciform black spot; the complex broad dorsal marking widens a little (diamond-like) on the middle of each following segment, and is composed of a fine broken grey outline, followed within by a line-like interval of the yellow ground, and then with freckles of bluish-grey edged with darker grey, and having a middle delicate thread-like interval of the yellow; near the sub-dorsal region, run double fine broken lines of grey freckles, which on the front of the fourth segment are absent, but only interrupted on each of the other segments as they approach the bright orange tubercles placed in twos, *i. e.*, a very small roundish one in front, and a large one transversely oval just behind it;* besides the thoracic black tubercles mentioned, others occur on the eighth, twelfth, and thirteenth segments, as follows: the small front tubercles on the eighth are black, and the dorsal region just there is also more or less black, together forming a conspicuous trilobed spot; on the twelfth is a greater suffusion of the black in which both large and small tubercles are dyed; the tubercles on the front of the thirteenth segment are also black, the anal flap is dark brownish-grey, blotched with blackish and sparingly freckled with yellow; the yellow ground of the back is very effectively relieved by the broad sub-dorsal velvety black stripe, on which the larger orange tubercles encroach; it has a very broken thread of yellow dots along the middle,

* In the female these tubercles were *deep orange-red*, and the dorsal markings more decidedly of a diamond shape on each segment. —W. B.

and is margined below with a fine line of yellow, with another more interrupted beneath it; from thence the ground colours of the side are dark reddish-grey, paler yellowish-grey next on the spiracular region, and darker brownish-grey below, including the semi-transparent ventral and anal legs with their brown hooks; the spiracular region is edged above and below at the segmental divisions with pale yellow; all the lateral tubercles are longitudinally oval and dark brownish-grey, each of these uppermost ones placed on a blackish crescentic blotch delicately edged with pale yellow; the belly dark greenish-grey, with a yellowish interrupted stripe on each side close to the legs; the hairs which hide the spiracles are chiefly grey, or slightly mixed with a few black ones on the sides, but those proceeding from the few dorsal black tubercles are blackish, and all are glossy. In one larva the lowest hairs along the sides were whity-brown, the next row above grey, and the upper rows darker grey mixed with black.

The pupal change, in one instance, occurred on the fourth day after the commencement of the cocoon, which was spun against the side of its cage, and in junction with the leno cover of it, and was formed of a large gossamer web of a roundish figure, about two by one and a half inches, of a darkish grey colour, and having the larval hairs interwoven; inside this outer web was a hammock of a finer textured silk, held in suspension by fine threads at intervals in connection with the outer fabric. The pupa within the hammock lay belly upwards, and was eight lines in length, two and a half lines broad, almost uniform in size throughout, the head rounded, and only the last two segments tapered to the blunt and rounded tip, the surface smooth, quite black and highly polished; the old larval skin lying detached behind it.

Emsworth: *February 7th, 1874.*

DESCRIPTIONS OF TWO SPECIES OF *TENTHREDINIDÆ*, NEW
TO SCIENCE, FROM SCOTLAND.

BY P. CAMERON, JUN.

TAXONUS GLOTTIANUS, *sp. n.*

T. niger, sub-nitidus, genubus tibiisque anticis sordide testaceis; alis sub-fumatis, stigmatè nigricante. ♀. *Long. 3, alar. exp. 6 lin.*

Antennæ black, about as long as the head and thorax; head black, covered with short pubescence; thorax and abdomen black, almost shining, the abdomen with a triangular white spot at the base (as in *Cimbex variabilis*); feet black—all the knees, anterior tibiæ and the tarsi at the base, sordid testaceous; wings almost smoky; costa and stigma blackish, the latter pale testaceous at the base. In the lower part of the second sub-marginal cell is a minute black dot.

In the entire absence of red coloration, this species agrees with *T. albipes*, Thoms., and it has a considerable resemblance to *Emphytus tener*, Fall. (*patellatus*, Kl.).

I have only seen one example, which was taken three years ago on the 26th of May, at Kenmuir Bank, on the Clyde, above Glasgow, probably by sweeping herbage.

NEMATUS GRAMINIS, *sp. n.*

N. niger, nitidus, pedibus albidis, femoribus 4 anticis pro parte, posticis fere totis, tarsis posticis tibiærumque apicibus nigris. Alæ hyalinæ, costa albida, stigmatibus fuscis. Abdomen subtus albo-virescens. ♀.

Long. 2 $\frac{3}{4}$, alar. exp. 5 $\frac{3}{4}$ lin.

Antennæ black, finely pubescent, as long as the body; head black, pubescent, and finely punctured above and in front; labrum blackish or greenish-white; palpi fuscous at the base, remainder whitish (? greenish-white when fresh); thorax black, shining, minutely punctured above, covered with white down underneath; tegulæ white; pronotum thinly edged with white; feet covered with a white pubescence; coxæ white, anterior black at the base; four anterior femora sordid white, irregularly encircled with black from near the extreme base to the middle; the second pair with more black than the first; posterior pair black, with the base white; tibiæ white; the posterior black at the apex; tarsi white, slightly fuscous at the joints; posterior black; wings hyaline, iridescent; costa whitish, stigma fuscous or fuscous-black; nervures fuscous-black, pale at the base; abdomen black above, the extreme apex greenish-white; underneath whitish-green, the apex black and pilose: the saw is curved at the base, its back rather straight, and with 17 or 18 waved teeth.

Some variation exists in the amount of black with which the femora are marked, at least, among bred specimens.

Larva: head green, a little smaller than the second segment, flat in front, with a fuscous tint, a darker line down the centre; eye spots black; mouth brownish-black; feet and claspers glassy-white; body cylindrical, entirely grass-green, covered with longish hairs, the sides slightly overhang the feet. Length 8—9 lines.

Food plant, low grasses.

The pupa is of a lighter green than the larva, with the wings, antennæ, and feet glassy-white.

The larvæ are very irritable; and, when touched, lash the body about furiously. The cocoon is of the usual *Nematus* form, and, in confinement, is spun against the sides of the breeding jar, or between the blades of grass. I have taken the fly as early as the 26th April; the larva about the middle of June; and have reared the imago at the end of July. Possibly two broods occur. The species is not uncommon in the Glasgow districts; and it has been taken near Aberdeen by Mr. J. W. H. Traill, and at St. Albans by the Rev. T. A. Marshall.

Not being able to find a description applicable to this species, I forwarded specimens to Mr. Snellen van Vollenhoven and to Herr Brischke, of Danzig, who have both kindly informed me that it is undescribed. It is closely allied to, but cannot be confounded with, *N. obductus*, Kl.

Glasgow: 4th February, 1874.

DESCRIPTION OF A NEW EUROPEAN SPECIES OF *BETHYLIDES*
(HYMENOPTERA: OXYURA).

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

Genus ISOBRACHIUM, Först.

Hym. Stud., ii, 96.

This genus is distinguished from the other Bethyloid genera by having the middle longitudinal nervure divided at the apex into two equal branches. It is nearest to *Epyris*, Westw., but the thoracic sutures are invisible, and the abdominal segments of unequal length. I suspect that *Mesitius*, Spin., is a synonym, but cannot succeed in finding the description of that genus, if indeed it be anything more than MS. *Isobrachium* has no representative in England, but several undescribed forms from the South of Europe are in my possession, as well as *I. dichotomum*, Först., of which I found both sexes at Arles.

ISOBRACHIUM MACULIPENNE, *sp. n.*

I. nigrum, nitidum, oris partibus, antennarum articulo 1° basi et apice, 2° apice, trochanteribus, femoribus tibiisque basi et apice, una cum tarsis, piceo-rufis: capite crebre, thorace et scutello parce, punctulatis: metathorace longitudinaliter striato, inter strias ruguloso: alis sub-infumatis, fascia ante medium maculaque magna pone medium fuscis, macula media hyalina.

♀. Long. $2\frac{1}{4}$; alar. exp. $2\frac{3}{4}$ lin.

Habitat, Corsica.

Antennæ filiform, twice as long as the head; the scape as long as the two following joints, stout, curved; 1st joint of the flagellum once and a half as long as the 2nd; 2nd joint longer than the 3rd; the rest sub-equal, cylindrical. Head broader than the thorax, depressed, sub-quadrate, rather thickly punctured. Thorax and scutellum with finer and more remote punctures. Prothorax largely developed, three times longer than the mesothorax, rounded and narrowed in front, widened and angularly produced on each side behind. Scutellum with two basal foveæ connected by a transverse groove. Metathorax sub-quadrate, horizontal, truncated behind perpendicularly, longitudinally striated, and rugulose between the striæ. Abdomen shining, impunctate, pyriform, very convex, widest just before the middle, acuminate

at the apex; suture between the 1st and 2nd segments semicircular; 2nd segment the longest. Terebra slightly exerted, rufous. Legs short; the fore tibia and tarsus equal; in the other two pairs the tarsus is longer than the tibia. Wings dusky hyaline; the three longitudinal nervures fuscous as far as the recurrent nervures, which are fuscous also; beyond them is a large hyaline space, and in the apical half of the wing a large indeterminate fuscous cloud, covering the *ramus stigmaticus*, which is darker fuscous. The rest of the nervures are colourless. The *ramus marginalis* is somewhat thickened into an elongate stigma, from which proceeds a long curved *ramus stigmaticus* (radius), not reaching the margin of the wing. The white spurious veins may be faintly traced across the dark apical spot.

Grange, Lasteringham, Pickering:

December, 1873.

DESCRIPTION OF A NEW AFRICAN SPECIES OF THE GENUS
ISCHIODONTUS, CAND. (COLEOPTERA: FAM. ELATERIDÆ).

BY C. RITSEMA.

ISCHIODONTUS CANDEZEI, *sp. n.*

Brunneus, nitidus, sat dense griseo fulvo pilosulus; antennis articulo tertio quarto subæquali; prothorace latitudine haud longiore, a basi angustato, parum convexo, punctato, punctis lateralibus umbilicatis; angulis posticis retrorsum productis, acutis, carinatis; elytris profunde punctato-striatis; interstitiis convexis. Long. 15 mill., larg. 3½ mill.

Elongate, shining brown, somewhat densely clothed with short, slightly fulvescent, grey hairs. Antennæ short, not reaching the posterior angles of the prothorax, the joints pubescent, having each some additional longer hairs; the third joint of the form, and very nearly of the size, of the fourth. Prothorax as long as broad, narrowed from the base, with the sides slightly curved; but little convex except at the apex, rather densely punctured, the punctures on the sides umbilicate, the posterior angles directed backwards, short, acute, carinate. Elytra as broad as the prothorax, and at least two and a-half times longer, parallel in front, narrowed in a curvilinear manner at the apex, where they are slightly acuminate; convex, deeply punctate-striate. Body beneath and legs of the same colour as above.

An example of this species (which I dedicate to the author of the excellent 'Monographie des Elatérides,' Dr. E. Candèze, of Liège) was taken at Bananna, Congo, in South Guinea, by the late G. van Woerden, and is in the collection of Mr. F. J. M. Heylaerts (fils) at Breda.

The species is most nearly allied to *I. ovalis*, Cand., from which, however, it differs in several important points. It has the posterior coxæ but little angulated, and in this respect constitutes a transitional form between *Ischiodontus* and *Psephus*, Cand.

Leyden: 3rd February, 1874.

DESCRIPTION OF A NEW SPECIES OF *HELICONIA* FROM CENTRAL AMERICA.

BY W. C. HEWITSON, F.L.S.

HELICONIA THEUDELA, *sp. n.*

Upper-side : male blue-black. Anterior wing crossed obliquely by two bands of pale yellow : one in the middle trifold, the other near the apex quinquefid. Posterior wing with a broad submarginal band of pale yellow, divided into oblong spots by the nervures and black lines between them.

Under-side : as above, except that it is paler, and that the posterior wing has a series of seven small scarlet spots at the base.

Exp. $2\frac{7}{10}$ inch. Hab. Panama.

This species closely resembles *H. Magdalena* on the anterior wing. The posterior wing is like that of *Metharme*.

Oatlands, Weybridge : *February*, 1874.

DESCRIPTIONS OF NEW SPECIES OF *COLEOPTERA* FROM JAPAN.

BY THE REV. H. S. GORHAM.

FAMILY *LYCOPERDINIDÆ*.Genus *SAULA*, Gerstcker.*SAULA JAPONICA*, *sp. n.*

Breviter ovata, subnitida, parce pubescens, lutea, antennis pedibusque totis nigris, thorace infusato. Long. lin. $1\frac{1}{2}$.

Allied to *Saula nigripes*, Gerst., from which it is to be distinguished by its rather *smaller size*, more convex body, and *shorter antennæ*. It also presents the following differences :—the antennæ and legs are wholly black, the head and thorax fuscous (this colour in some individuals extending more over the surface of the latter than in others, in which the margins are pale), and the elytra are less pubescent, and more shining.

This is the species referred to by me (Ent. Mo. Mag., ix, p. 206) as *Saula nigripes* (?). I have now obtained more specimens of the latter from Borneo, and have no longer any hesitation in recording the Japanese insect as specifically distinct from it. "It is common," Mr. G. Lewis says, "in South Japan by brushing and beating in summer, "but I have not seen it from Hakodaté."

FAMILY *MYCETÆIDÆ*.

The genus *Symbiotes* of Redtenbacher was founded on a species (*latus*) which, though possessing a different facies to its nearest ally

Mycetæa hirta, must be confessed to differ but little from it structurally. In the latter, the club of the antennæ is gradually thickened, while in *Symbiotes* it is abrupt; the labium of the one is slightly rounded, in the other it is straight; the labial palpi in this are longer than wide, with the tip *widely* truncate; in that they are sub-globose, with the tip truncate; and so on, through all the mouth organs, specific rather than generic differences only are to be found. Superficially viewed, a more important point of divergence is, that while in *Mycetæa* the thorax is margined (as in *Stenotarsus*) by a fine line only, in *Symbiotes* the longitudinal sulci usually found in the *Endomycici* appear.

It is interesting, therefore, to find among Mr. Lewis's insects from Japan a species which, possessing some of the characters of both genera, is not allied closely to any of either, and differs somewhat in its habits from both. *Mycetæa* is an inhabitant of damp cellars and outhouses, and *Symbiotes*, though said to occur with ants, has usually been found under bark: no doubt both feed on fungoid growth. The Japan insect is found in *rubbish heaps*, where I have never found our English species. In its very wide form, and deeply punctured striæ it presents a strange contrast to them; and, while its antennæ more resemble those of *Mycetæa*, the deep sulci on the thorax and general appearance have inclined me to place it under *Symbiotes*. With regard to the situation of the *Mycetæidæ* as a family, I may notice that Redtenbacher in his new edition of the "Fauna Austriaca" has grouped them under the *Cryptophagides**; but we must observe that in the same group he includes *Lithophilus* (now regarded by most as a Coccinellid), *Leistes*, the Erotylians, and *Tetratoma*,—a system which can hardly be considered digested. *Alexia* bears considerable resemblance to the tropical *Rhymbus*, but has 10-jointed antennæ, and lacks thoracic sulci, the presence of which in *Symbiotes* inclines me strongly to think that *Mycetæa* and its allies meet their true affinities among the *Endomycici*.

Genus SYMBIOTES, Redtenbacher.

SYMBIOTES NIPONENSIS, *sp. n.*

Sub-orbicularis, ferrugineus, tenuiter pilosus, elytris ampliatis, fortiter striato-punctatis, striis sulcatis. Long. lin. *vix* 1.

Dark rusty-red; antennæ of the length of the thorax, rather stout, with the basal and three terminal joints especially wide, the ninth (or first joint of the club) is not so much wider than the eighth as in the European species of this genus; yet, being triangular, the club is tolerably abrupt. The thorax is quite twice as wide as

* Seidlitz (Fauna Baltica) includes *Symbiotes* and *Mycetæa* with *Alexia*, *Leistes*, *Monotoma*, *Lathridius*, *Corticaria*, *Myrmecocenus* and *Myrmidius* in the *Colydiidæ*!—E. C. R.

long, the sides very considerably rounded and narrowed in front, the hind angles rectangular; longitudinal sulci deep and wide at the base, their external margin well defined as a sharp line, which is continued almost to the front margin, they are connected at the base by a fine, transverse, impressed line; disc of the thorax smooth, external margins finely punctured. Elytra very little longer than wide, their sides rounded and a little narrowed to the apex, each with nine striæ, punctured deeply, each separate puncture being easily visible, the margin with a row of punctures, widened and reflexed. Legs and antennæ pale ferruginous.

"Common at Nagasaki in rubbish heaps in winter: probably
"widely distributed in South Japan."—G. L.

Shipley Vicarage, Horsham :

February 9th, 1874.

DESCRIPTION OF A NEW SPECIES OF *BARIDIUS* (COLEOPTERA :
RHYNCHOPHORA) FROM SINGAPORE, WHICH DESTROYS ORCHIDS.

BY CHAS. O. WATERHOUSE.

BARIDIUS *ATERRIMUS*, *sp. n.*

Ater, depressiusculus, opacus. Rostro valido, elongato, arcuato, fortiter crebre punctato, lateribus sulcatis. Thorace antice oblique angustato, lateribus rotundatis, elytrorum latitudine vix latiori. (♀) vel angustiori (♂), fortiter crebre punctato, granulis inter puncta nitidis. Scutello parvo, rotundato, punctato. Elytris thoracis basi paulo latioribus, apicem versus gradatim angustatis, sat fortiter sulcatis; sulcis fortiter punctatis (punctis elongatis), interstitiis planis, opacis, coriaceis, tuberculis perparvis nitidis aspersis. Corpore subtus pedibusque fortiter crebre punctatis.

Long. corp. (rostrum excluso) 2—2½ lin.

The curve of the rostrum is not in continuation of that of the forehead, but the rostrum springs somewhat abruptly from the forehead with an arch; the punctuation is strong and coarse, and on the sides the punctures are confluent, and form irregular longitudinal furrows. The thorax is broadest rather behind the middle where the sides are rounded, in front gradually narrowing to the head (at the apex very slightly constricted), behind narrower than the elytra; the posterior margin strongly bisinuate; the surface very thickly, strongly, and evenly punctured, leaving the very slight intervals like minute, shining granules. The elytra are somewhat strongly sulcate, the sulci with elongate separate punctures; the interstices are flat, opaque, extremely finely coriaceous, with minute shining granules, rather irregularly scattered over the surface. The anterior and intermediate femora are furnished with a distinct tooth on the under-side. The sterna are strongly and closely ocellate-punctate; the abdomen less strongly and less thickly punctured, and somewhat shining.

Hab. : Singapore. Coll. Brit. Mus.

"Most destructive to *Phalænopsis* and other Orchids," according to Mr. Jamie, of Singapore, by whom the specimens were sent.

This insect, judging from its resemblance to certain new species which I have seen in Mr. Pascoe's collection, about to be described in the Journal of the Linnean Society for 1874, will probably enter into a new genus *Acythopeus*; but I cannot speak with certainty as to this, having only seen a proof of Mr. Pascoe's paper for a moment.

British Museum : *January 13th*, 1874.

NOTES ON SOME *ODONATA*, &c., IN THE COLLECTION OF THE
ROYAL DUBLIN SOCIETY.

BY R. M'LACHLAN, F.L.S.

The fact that the Royal Dublin Society is supposed to possess Leske's collection of insects, and the types of the new species diagnosed therefrom by Zschach in the 'Museum Leskeanum' (1788), induced me to apply to Mr. W. F. Kirby, the curator, respecting these types. He kindly forwarded to me a number of *Neuroptera* (principally *Odonata*), as being possibly from Leske's collection. But a glance at them convinced me that, with few exceptions, they never had any connection with that collection, and that (although they have no locality labels) they are really part of the collections formed by Abbot, in Georgia, U.S.A. The whole collection is bleached by age and exposure, but contains some species of extreme rarity, species that have scarcely been found since Abbot's time, notwithstanding the exertions of American collectors.

I made the following notes concerning the best insects:—

CALOPTERYGINA. An example of *Sylphis angustipennis*, Selys, ♀, wanting all but the 5 first segments of the abdomen. Exists in only one or two other collections (Brit. Mus. and Collect. Hagen).

GOMPHINA. *Tachopteryx Thoreyi*, Hag., ♂; also of great rarity, though it appears to be widely spread in N. America.

ÆSCHNINA. *Anax longipes*, Hag., ♂; wanting segments 7—10 of the abdomen. I believe the only other example known is the ♀ in the Zurich Museum, also from Abbot. The one I have seen is much bleached, but from the extraordinary length of the hind-legs, the red femora, the form of the front, and the absence of markings thereon, there can be no doubt of the correct determination. The dimensions are:—length of body 60 millimètres

to end of sixth segment of abdomen; expanse of wings 125 mm.; length of hind-wing 51 mm.; length of posterior legs 40 mm.; length of posterior femora 19 mm.; of posterior tibiæ 13 mm. The tarsal claws have a basal internal dilatation followed by one sharp tooth. 19 ante-cubital and 9 post-cubital nervules in the anterior wings (For detailed description of ♀, cf. Hagen, Verhandl. zool.-bot. Gesells. Wien, 1867, p. 35). *Æschna pentacantha*, Rambur, ♂, agrees entirely with Rambur's (♀) and Hagen's (♂ ♀) description, but there are only 15 post-cubital nervules in the anterior wings (17 in posterior) instead of 19. I have not seen the ♀, but the eyes in the ♂ seem to be connected in a longer space than is described by Rambur for the other sex. An extremely rare species.

CORDULIINA. *Macromia transversa*, Say, ♂, and *Cordulia cynosura*, Say, ♂; neither of them an abundant species.

LIBELLULINA. The best are probably *Libellula semifasciata*, Burm., and *L. plumbea*, Uhler; but, as in the other tribes, most of the species belong to the Southern rather than to the Northern States.

The other groups of *Neuroptera* are scarcely represented; but there is a ♂ of *Ptynx appendiculatus*, F., a species beautifully figured by Abbot in his collection of drawings now in the British Museum.

The few insects from Leske's collection seen by me are prepared in a peculiar manner, each being stuck on to a piece of cork, and this gummed into a little glass case (one insect in each), bearing a number corresponding to that in the 'Museum Leskeanum.' The only type is *Semblis ecaudata*, Zschach, No. 236, 'exotica': this is a small *Mantispa* without head and prothorax, utterly indeterminable specifically.

Lewisham: 18th August, 1873.

Note on Pulex obtusiceps, Ritsema, = P. talpæ, Curtis.—Seeing my note on *Pulex talpæ* in the Nat. Hist. Trans. of Northumberland and Durham, iii, p. 378, Mr. C. Ritsema, Conservator at the Royal Museum of Natural History of Leyden, wrote to me for examples of it; these I had much pleasure in sending to him. In his reply he informed me that the two (♂ & ♀) sent by me were the same as his *Pulex obtusiceps*, described and figured in the Tijdschr. Ent. (2nd series) iii, 1868, and in his opinion not *Pulex talpæ*. I therefore sent my specimens up to the British Museum, where they were carefully compared with Curtis's type of *talpæ* by Mr. C. O. Waterhouse, who found them to agree in every essential character with it. The specific name proposed by the learned Dutchman must therefore become a synonym.—THOS. JNO. BOLD, Long Benton, Newcastle-on-Tyne: Jan. 31st, 1874.

Note on Harpalus luteicornis, Duft.—I have recently had an opportunity of carefully examining the supposed individual of this species recorded at p. 75 of vol. i of this Magazine, as having been taken near Lowestoft, in June, 1861, by Mr. E. Saunders, and which is a very small and immature female example of *H. tardus*. As this is the only British representative of *H. luteicornis* that has come under my notice since I could distinguish a *Harpalus* from a *Pterostichus*, I have been induced to examine the claims of the species to a place on our list, and I find that all the evidence adduced by Dawson (Geod. Brit. p. 143) in introducing it is: 1st, that an individual in the Stephensian collection, standing incorrectly under the name *servus*, "appears to correspond" with *luteicornis*; 2ndly, that "there are two other examples in Mr. Curtis's cabinet, and two or three in the National collection, which will likewise, I believe, be found to accord with it, besides the examples which may exist in private collections;" and, 3rdly, apparently as a deduction from these dubious premises, that "the insect is found very sparingly in sandy districts in the south." I have just examined the pseudo-*servus* of Stephens, above mentioned, which is almost certainly a little example of *H. latus*, and is positively (if only from the posterior angles of its thorax being distinctly obtuse, as in *latus*) not *luteicornis*. Curtis's examples are in Australia, and are referred to with such a want of certainty that they could not be relied on. There are no representatives of *H. luteicornis* in the (British) National collection; and the examples which "may exist" in private collections cannot of course be reckoned. My own impression is that Dawson did not know the species, as he does not make the least mention of its close affinity with *H. latus*, from which he separates it by four other species (including *atricornis*, which is an *Anisodactylus*!); and, so far from its being likely to be found "in sandy districts in the south," it would, from the localities given by Erichson, Heer, and others, seem to be a dweller in mountainous regions, like its other (recently added) ally, *H. quadripunctatus*.

The entire description of *H. luteicornis* given by Schaum is a comparison with *latus*, which he states it to resemble inordinately, being, however, always considerably smaller, with the hinder angles of the thorax perfectly rectangular, the points of the angles not being blunted, the base of the thorax more slightly punctured, often wholly impunctate in the middle, and the antennæ and legs still lighter in colour. Besides these characters, its thorax seems to be somewhat longer.

From the range of the species on the continent, there seems every reason to expect that it should occur in this country; but I do not think it has as yet been recorded correctly as British. I observe that Mr. Crotch omitted it from the 1st edition of his Catalogue, but he restored it in the 2nd edition of that work. His supposed exponents of it, judging by a type from his collection now in that of Mr. O. Janson, and which I have just seen, were *H. latus*.—E. C. RYE, Parkfield, Putney, S.W.: February, 1874.

Note on Bostrichus Bulmerincqii, Kolen.—The description and figure of this insect given by Kolenati in his "Meletemata Entomologica," fasc. iii (1846), p. 39, pl. xiv, fig. 12, seem to accord well enough with the long subsequently described *Dryæetes alni* of Georg (1856), with which my *Marshami* has been identified by Herr Eichhoff. Kolenati's species was, like *Marshami*, found in beech, in Iberia (Central Georgia, not Spain), and the Caucasus; it is described as being most like

bicolor, Hbst., from which it differs in its larger size, in its thorax not being attenuate in front, rugulose behind, and with straight angles, and in its less pilosity. In case this identification prove well founded, and *Bulmerincqii* stand, it may be as well to note that the name (which apparently requires a little "emendation") is in honour "Dni. Chiliarchæ ab Bulmerincq."—ID.

Note on Pamphila Sylvanus.—Some years ago, while collecting *Lepidoptera* in Kent, I believe I observed that the males of the common *P. Sylvanus* made their appearance ten days or a fortnight before any number of the females were to be seen; and that, consequently, when the females did appear, the males had become comparatively scarce.

Perhaps, during the coming season some Lepidopterist will confirm or refute this: an easy matter, for *Sylvanus* appears both in May and August.

It is, of course, useless to speculate upon an unproved phenomenon; but I would merely hint that, as the larva of the *Hesperiidæ* are leaf-rollers, and spin cocoons for their chrysalides, it is possible they may enjoy a comparative immunity from the attacks of Ichneumons, and that nature has therefore employed other means (of which the separation of the sexes may be one) to check the too rapid increase of any abundant species.—A. O. WARD, 10, Stratford Grove, Putney, S.W.: *February, 1874.*

Notodonta bicolora in Ireland.—After reading what has been urged in your January and February numbers, in support of the claim of *Notodonta bicolora* to a place in the list of Irish *Lepidoptera*, I must still hold to the opinion I have expressed, that its occurrence requires "confirmation." It is at present merely a dealer's insect, and will, I expect, gradually retire from the market like the *Apollo*, *Podalirius*, and *virgaureæ* of the last generation.

I was at Killarney at the time Bouchard professed to have captured *N. bicolora*, and my first suspicion of its foreign origin was raised by his own unprovoked charge against other collectors of importing pupæ; thus showing what was in his mind, and that he was perfectly familiar with the process.

He had been at Killarney several weeks before I arrived, and I asked to see his captures. Amongst them were many species not recorded as Irish, but, on my proceeding to make notes, he admitted that he had bred them since his arrival, from pupæ brought from England, alarmed, I suppose, at the number of species I was going to make him responsible for.

My conviction is strong that *N. bicolora* also crossed the "silver streak" in the pupa state.

It was Bouchard, not Turner, as Mr. Hodgkinson states, who professed to have found a wing of *N. bicolora* in a spider's web. I saw it in his possession, and I know that Turner utterly disbelieved Bouchard's story.—EDWIN BIRCHALL, Kirk-stall Grove: *February 2nd, 1874.*

[We decline to insert any further communications on this subject.—EDS.]

Description of the larva, &c., of Nonagria geminipuncta.—I am happy to acknowledge my obligation to Mr. Howard Vaughan for my acquaintance with this

fen haunting species. I had hoped to have obtained more information about its earlier stages, but, after waiting since 1870, I have thought it best to publish what I know; so few fen collectors seeming to care about larvæ.

Two pieces of *Arundo phragmites* were sent to me on June 21st by Mr. Vaughan, each containing a larva of this species. The reeds appeared to have been cut rather low down towards the base, as they were not green and bore no fresh leaf, but were of a pale buff tint, somewhat like cane in texture, though on some parts there were remains of old dried leaf-cuticle of a whity-brown or pale brownish-grey tint; the pieces had been cut with a knot left at either end; the length between the knots inhabited by a larva measured about four and three-eighths to four and a-half inches, the diameter three-eighths of an inch; the sign of a tenant consisted of two orifices plugged from within; the upper hole by which the imago escaped was five-sixteenths of an inch from the knot, and the oblong hole itself a quarter of an inch in length in a perpendicular direction, and its breadth a little more than one-eighth of an inch, spun over with grey silk, behind which were particles of pith adhering*; the lower hole was not quite in a line with that above, though both holes could be seen at once; its distance from the lower knot half an inch, its length nearly a quarter of an inch; the outline of the orifice was oblique and irregular, it being, in fact, composed of two perforations, the smallest, below, having an excavated channel under a small piece of the reed cuticle, which led to the larger perforation; this hole was stopped with grey silk from within, and altogether appeared less conspicuous than the other above described.

One of the larvæ, which was extracted from its stem for the purpose of being figured, died on the 25th of June, the other was only looked at, and, the split in the reed which had been made for that purpose being carefully bound up again, it went safely through its changes, and appeared as a moth on July 23rd.

The full-grown larva was of the usual *Noctua* form, one and one-eighth of an inch in length, moderately, but not very, stout, tapered a little just at each end, cylindrical, all the legs well developed; it was of a deepish flesh colour, the skin, without much gloss, of a wax-like texture in appearance; the face and lobes of the head were dark brown and shining, between them on the crown the skin was pale flesh colour; the shining plate on the second segment was of rather a deeper flesh tint, and dorsally divided by a line of paler; the plate on the anal flap was of a shining pale brownish tint, and semi-transparent; the dorsal vessel just visible as a stripe of a tint of flesh colour barely darker than the ground: two parallel lines of faint whitish flesh colour ran rather interruptedly along the spiracular region, dimly suggestive of the branchial apparatus beneath the skin; the oval spiracles were dark grey outlined with black; the warty tubercular spots were shining, of a pale brown colour, each furnished with a very fine hair; the anterior legs spotted with pale brown; the ventral and anal legs greyish, tipped with darkish brown.

The pupa, judging from the empty skin, seemed to be lying free in the interior of the reed stem, head uppermost; its length a little more than seven-eighths of an inch, rather slender, stoutest about the thorax, the wing cases short in comparison with the length of the abdomen, which had its segments well divided, and was

* Mr. Vaughan's impression is that the larva of *geminipuncta* does not quite cut through the reed stem, but leaves a thin film of the cuticle over the upper orifice, as a protection, which, sometimes, from a cause unknown, is wanting. —W. B.

tapered off gradually to the tip; the pupa skin rather smooth, but with little polish excepting in the abdominal divisions; its colour a dark purplish-brown on the thorax and wing covers, not quite so dark on the abdomen. The interior of the reed stem in which the pupa lay was smooth, and of an opaque, deep, sooty-brown colour, but without any lining of silk.—WILLIAM BUCKLER, Emsworth: December 27th, 1873.

Notes on some Tineina observed in 1873.—*Dasystoma salicella*: bred two females in April, from larvæ between united leaflets of dog-rose. *Solenobia inconspicuellæ*: bred females in May, from larvæ collected in October, 1872; also found larvæ in June. *Swammerdamia pyrella*: found two larvæ of this species still feeding, and not full grown, at the end of October. *Gracilaria stigmatella*: found three or four larvæ on willow on June 23rd, and bred one imago on July 24th, and in August and September collected some thirty larvæ, but bred only one moth, nearly all the others being parasitized; from this it would appear that the insect must be double brooded. *Gracilaria ononidis*: caught a specimen in fine condition on September 2nd, in the kitchen of my dwelling, the first I ever saw alive; the date of appearance, coupled with its fine condition, favours the possibility of a second brood of larvæ of this species, as suggested in Nat. Hist. Tin., viii, 176. *Coriscium Brongniardellum*: having bred this insect at end of July and beginning of August, I was much surprised on finding some six or seven feeding vigorously in two oak leaves on the 21st of August at Thorngrove; I was unable to examine the vessel they were put into until the middle of September, when I found they had escaped through some small outlets, so I failed to trace them beyond the larval state. On October 18th I found several deserted habitations of an *Ornix* (apparently) on leaves of *Pyrus torminalis*, and one containing a larva, which died after commencing its cocoon. On September 30th I found two larvæ of a *Coleophora* feeding on hawthorn; the cases resembled those of *C. fuscedinella*, and were about as large as those of *fuscadinella* when full fed. *Lithocolletis Messaniella*: bred several from leaves of beech. *Lyonetia Clerckella*: bred this from hawthorn and cherry-laurel. *Phyllocnistis saligna*: larvæ and pupæ collected June 21st, produced moths at end of June and in July; others collected on August 4th produced moths in August; and another lot collected on the 25th September, yielded moths in October. On the 18th October, I found two larvæ of a *Nepticula* making long contorted galleries in leaves of *Pyrus torminalis*, at Wickenford. One larva was lost, the other was accidentally crushed just when it had commenced making its cocoon. *Nepticula aurella*: found four or five larvæ which, from the cocoons they formed, should belong to this species, in leaves of raspberry, in my garden, early in October.—J. E. FLETCHER, Pitmaston Road, Worcester: February 2nd, 1874.

Zoological nomenclature.—In the Review published in last month's number of this Magazine of my pamphlet on Zoological Nomenclature, it is said, that if the propositions of the pamphlet should be adopted, "the mere collector has the satisfaction of a thoroughly unchangeable name, whereas the unhappy student must adopt a trinomial nomenclature." This statement is incomplete, and is calculated to convey an erroneous impression.

It is quite true that the "mere collector" (as well as every one else) would have a thoroughly unchangeable name for a species; but it is not true that the student

whether happy (as all students should be) or not, must adopt a trinomial nomenclature. Will the reviewers consider for what that trinomial nomenclature must be adopted? They seem to have missed the essence of my scheme, which is to practically separate the nomenclature of the species from that of the genus. As I am sure that they wished to do justice to my ideas, and as they stated that "the foregoing sketch gives a correct view of what appears to be the aim of our author," I have thought it worth while to ask the insertion of this short note.—D. SHARP, Eccles, Thornhill: *February 9th*, 1874.

[Although it is distinctly opposed to the ordinary rules, we insert the above reply to our Review, as we really wish to do justice to the author's ideas; and we trust it may be more satisfactory to our readers than to ourselves.—EDS.]

Review.

LEPIDOPTERA, RHOPALOCERES AND HETEROCERES, INDIGENOUS AND EXOTIC, with descriptions and coloured illustrations; by HERMAN STRECKER. Parts 1—6, 4to, each with one coloured plate. Reading, Pennsylvania; 1872—73.

Among the numerous and beautiful new works on *Lepidoptera* which we are constantly receiving from America, the present deserves special notice for its comprehensive character. It is not confined to any one group of *Lepidoptera*, nor even intended to be confined to those of the United States, though hitherto it has contained only new, rare, or unfigured North American species.

Three of the six parts before us contain butterflies; two more, moths of the genus *Catocala* (a specially favourite genus with Mr. Strecker, who intends in time to figure all the species); and another, a fine new *Platysamia* allied to the well-known *P. Cecropia*. Part 7, which has not yet reached us, will be devoted to the genus *Smerinthus*. Each part contains one plate, crowded with good figures (sometimes as many as fifteen); and, although issued at a very low price, the enterprising author proposes to give two plates instead of one, as soon as the number of subscribers will permit.

Obituary.

Félix Édouard Guérin-Ménéville died at Paris on the 26th of January last; he was in his 75th year, having been born at Toulon in 1799. From the days of his early manhood he was a constant writer on various branches of entomology, and in 1861 the number of works or articles from his pen had already reached 320, according to the 'Bibliotheca Entomologica,' and these are distributed over almost all orders of insects. For very many years his attention was mainly devoted to descriptive and systematic entomology, but latterly the economic branch of the subject occupied most of his time, especially sericiculture and the formidable vine-pest *Phylloxera*, and in these he received fresh impulse by the establishment of the French Acclimatization Society, in the affairs of which he took a leading part. Although in this country sericiculture may probably be looked upon as an experimental pastime, it is far different in France. The threatened (and in part effected) ruin of the French silk-growers by the notorious silk-worm disease, was naturally brought prominently under the notice of Guérin-Ménéville, and his investigations did much towards throwing light upon the obscure and remote causes of the disease; latterly, the

culture of the large eastern silk-producing *Bombyces* became one of his chief objects. Natural History owes much to him with respect to its periodical literature. So long since as the year 1831, he identified himself with this subject by establishing the 'Magasin de Zoologie,' and he continued uninterruptedly to occupy an editorial position almost to the day of his death, for the "Revue et Magasin de Zoologie" (into which was merged the original journal) was edited nominally by him from its establishment, and actually so up to a very recent date, when it passed into the hands of M. E. Deyrolle, who continues it. His services, both practical and scientific, met due appreciation in his native land, and amongst the other recognitions of them by foreigners, he was long since elected an Honorary Member of the Entomological Society of London, his death leaving a vacancy in their limited list.

NEWCASTLE-ON-TYNE ENTOMOLOGICAL SOCIETY.—The Annual Meeting was held on February 3rd, in the Museum of the Natural History Society. Mr. J. Hancock was in the chair, and exhibited two cases of *Lepidoptera* in fine preservation, collected by himself in Switzerland during the summer of 1844; also some fine specimens of beetles and moths from Africa and South America. Mr. F. Raine shewed specimens of *Vanessa Antiopa*, taken at Durham and Helmsley in 1872, *Anarta melanopa*, and other species taken at Rannoch in 1873, also several fine varieties, and a good collection of preserved larvæ. W. Maling, Esq., was re-elected President.—J. HAMILTON, Secretary, 13, Union Street, Newcastle: 13th February, 1874.

ENTOMOLOGICAL SOCIETY OF LONDON, 26th January, 1874. Anniversary Meeting.—Prof. WESTWOOD, President, in the Chair.

The ballot for the Council for 1874 took place, and the following gentlemen were elected:—Sir S. S. Saunders, Messrs. W. C. Boyd, J. W. Dunning, F. Grut, R. McLachlan, R. Meldola, F. Moore, H. T. Stainton, S. Stevens, G. H. Verrall, C. O. Waterhouse, J. J. Weir, and Prof. Westwood.

The following officers were elected:—President, Sir S. S. Saunders; Treasurer, R. McLachlan; Secretaries, F. Grut and G. H. Verrall; Librarian, E. W. Janson.

Prof. Westwood read an address on the progress of Entomological science in the past year, which was ordered to be printed.

The new President, who was absent through severe illness, nominated (by proxy) Messrs. Dunning, Stainton, and Prof. Westwood as his Vice-Presidents.

2nd February, 1874.—J. W. DUNNING, Esq., M.A., F.L.S., Vice-President, in the Chair.

E. C. Reed, Esq., of Santiago, Chili, was elected a Member, and Lord Dormer a Subscriber.

Mr. Müller stated that he had recently made an excursion in the Jurassian Alps, and had discovered there the existence of a blind cave-fauna in *Articulata*, specimens of which were exhibited: these consisted of a white myriopod found among rotten wood that had been carried into the cave by floods; a species of bat-parasites belonging to the genus *Hæmalastor* (Roch.), no bats being present, but it was suggested by Mr. Jenner Weir that they might have been left there by migratory bats; and a species of *Podura*.

A letter was read from Mr. J. V. Gooch respecting damage occasioned to coffee-plantations in Natal by the larvæ of a longicorn beetle, *Monohammus leuconotus*, which was exhibited in all its states. His son, Mr. W. D. Gooch, stated that he was grubbing-up all sickly plants, and only two per cent. were found to be not affected by the beetle; as a remedy he had applied a dressing of Stockholm tar to the stems. Mr. McLachlan thought the beetle probably only attacked plants already in a sickly condition from other causes, in accordance with the habits of a majority of species of the group; but Mr. Müller was of opinion that the beetle was the primary cause of the injury, and recommended hand-picking at the time the perfect insect occurred.

Mr. Kirby exhibited a specimen of *Lycæna Phæbe* from Australia, recently described in this Magazine (page 107 of the present vol.) by the Rev. R. P. Murray. Also *Satyrus Ziphia* from Madeira.

Mr. Butler communicated an amplification of his statement at the previous meeting, respecting some American species of *Apatura*. He was of opinion that *A. Herse* and *Lycaon* of Messrs. Scudder and Riley (*nec* Fab.), equal *Clyton* and *Celtis* of Boisduval, and are distinct: whereas *Herse* and *Lycaon*, Fab., are sexes of the species described and figured by Edwards as *A. Alicia*.

Mr. Druce communicated descriptions of fifteen new species of diurnal *Lepidoptera*.

ON CERTAIN BRITISH HEMIPTERA-HOMOPTERA.

BY JOHN SCOTT.

Revision of the BYTHOSCOPIDÆ, and descriptions of some species not hitherto recorded as British.

(concluded from page 195).

Species 11.—*PEDIOPSIS NANA*, H.-Sch.

Bythoscopus nanus, H.-Sch., Panz. D. I., 143, 6.

Pediopsis nanus, Flor, Rhyn. Livl., vol. ii, 192, 6: Kirschb., Cicad., 173, 5; Fieb., Verhandl. d. k. k. zool.-bot. Gesell., 461, 12 (1868).

♂. *Head* and *pronotum* black. *Elytra* white, almost transparent.

Head: *crown*—posterior margin generally very narrowly testaceous or yellowish.

Face black. *Ocelli* generally, and a more or less wide, longitudinal, central line from about in a line with the lower margin of the eyes to near the apex, testaceous or yellow; side margins from below the eyes generally narrowly testaceous or yellow. *Clypeus* black, apex narrowly yellow.

Thorax: *pronotum* black, finely crenulated, posterior margin somewhat broadly whitish, lateral margins broadly yellow anteriorly, shading off towards the posterior angles into whitish; near the anterior angles a small (frequently doubled) black puncture; anterior margin with a transverse, shining, black patch, bordered posteriorly by a narrow yellowish margin. *Scutellum* black; basal angles with a narrow, yellowish-white, triangular spot, or yellowish-white as far as the transverse channel, with a black, longitudinal, central streak, a black triangular spot within the basal angle, and a small black T near the central streak and about in a line with the apex of the triangular spot; apex black. *Elytra* white, almost transparent. *Clavus*—nerves white, inner marginal nerve dark

brown or blackish, slightly paler near the base. *Corium*—anterior marginal nerve for a greater or lesser distance from the base narrowly dark brown; nerves white, those enclosing the antiapical areas dark brown, rarely, the longitudinal nerves towards the base, brown. *Membrane*—nerves brown, posterior portion of the areas more or less brown. *Sternum* black; *prosternum* yellowish-white, with a large black spot near the base of the legs. *Legs* yellow; *thighs* black, apex yellow, or 1st pair frequently yellow on the under-side. *Tibiae* yellow; all the pairs exteriorly at the base with a short black streak, 3rd pair, towards the apex interiorly, more or less black, apex yellow. *Tarsi* yellowish or pale brownish. *Claws* dark brown or piceous.

Abdomen above, black, posterior margins of the segments, except the last, which is broader, very narrowly yellow; beneath black; last genital segment black, lower margin yellow; external processes yellow.

♀. Differs from the ♂ in having the crown and the upper portion of the face more or less yellow. The genital segments will at once distinguish the sex.

Length, 1 line.

Easily distinguished from all the other species by its black head, pronotum, and scutellum, and white elytra.

Rather common at Boxhill. I originally took two specimens in 1867, which Mr. Douglas and I, at that time, considered to be a new species, and they were sent over to Fieber with the name *cretacea*, D. and S., attached. He, however, returned them as the *P. nana*, H.-Sch. It occurs towards the end of July by sweeping the short grass.

Genus AGALLIA, Curtis.

The species comprised in this genus are all small, and have some slight resemblance to *Idiocerus*. Fieber enumerates nine species as European, three of which are found in this country.

Species 1.—AGALLIA PUNCTICEPS, Germ.

Iassus puncticeps, Germ., F. Ins. Eur., fasc. xvii, t. 12.

Agallia consobrina, Curt., Ent. Mag., vol. i, p. 193; Marshall, Ent. Mo. Mag., vol. iii, p. 151.

Agallia versicolor, Flor., Rhyn. Liv., vol. ii, p. 556; Kirschb., Cicad., p. 150, 3.

Pale testaceous, or with a faint brownish tinge; nerves of the elytra, posteriorly, and membrane piceous.

Head: crown with a black spot placed about midway between the centre and the inner margin of each eye; centre frequently with a brown streak, divided by a pale narrow line, and extending down the face until about in a line with the ocelli. *Face* with a brownish streak adjoining the inner margin of each eye; sides, from the eyes to the apex, more or less broadly brown, and with short, transverse, black streaks or spots; *clypeus* with a narrow, brown, central line; *ocelli* generally black. *Antennæ* pale testaceous; setæ fuscous.

Thorax : *pronotum* somewhat yellowish-white, with a testaceous-brown central line, slightly widest next the posterior margin ; on each side of the central line is a testaceous-brown triangular spot, its apex pointing towards the anterior margin, near to which are two small black spots. *Scutellum* yellowish-white, with a small, black, triangular spot near each basal angle, a transverse channel not reaching to the sides, which are somewhat lobate at this point, and above which are two punctures, frequently black. *Elytra* very pale testaceous, semi-transparent. *Clavus*—nerves white ; at the base, between the central nerve and the claval suture, a short brown streak ; and along the inner margin, between the nerves and before the apex, two short brown streaks. *Corium*—1st and 2nd longitudinal nerves, from the base to a little beyond the 1st transverse nerve, white, the remaining portion, as also those of the membrane, dark brown or piceous ; near the base, along the exterior margin of the 1st longitudinal nerve, a short piceous streak ; area enclosed by the white nerves, and base of the space between the inner longitudinal nerve and suture more or less brown. *Legs* pale yellowish ; *thighs* with one or sometimes two more or less distinct longitudinal brownish streaks along the upper-side, towards the apex. *Tibiæ* externally, at the base, with a short piceous streak ; inner margin, next the apex, more or less distinctly piceous. *Tarsi* pale yellowish, 2nd joint externally, at the base, sometimes with a short, fine, piceous or black line. *Claws* black.

Abdomen above, pitchy-brown, margins somewhat broadly pale yellowish-white ; beneath pale yellowish-white ; last genital segment and external processes pale yellowish-white. Length, $1\frac{1}{4}$ line.

This insect bears a great resemblance to the next species, but it is more elongate, and has the two black spots on the pronotum much smaller and closer together ; the ♂ also does not assume, as far as my knowledge goes, the dark appearance, and black or nearly black legs of *A. venosa*.

Not uncommon, and widely distributed. It has occurred near York, at Lee and Esher, by sweeping heath, &c., in August.

Species 2.—*AGALLIA VENOSA*, Fall.

Cicada venosa, Fall., *Cicad.*, 38, 21.

Iassus venosus, Germ., *Ent. Mag.*, vol. iv, 86, 18.

Bythoscopus venosus, Panz., *D. I.*, 143, 5.

Agallia venosa, Flor, Rhyn. Liv., vol. ii, 550, 1 ; Marshall, *Ent. Mo. Mag.*, vol. iii, 150, 1 ; Kirschb., *Cicad.*, 150, 4 ; J. Sahlb., *Not. Fenn.*, part xii, 153, 2.

Pale testaceous ; nerves of the elytra and membrane black.

♂. *Head* : *crown* with a black central line and a round black spot on either side, situated as in *A. puncticeps*. *Face* with a central line joined to that on the crown, gradually widened downwards, and terminating a little below the ocelli ; adjoining each eye a short, longitudinal, black streak, its apex generally joined to the extremities of the central line ; lower portion black, with a transverse, somewhat lunate, testaceous patch in a line with the base of the antennæ,

sides more or less spotted with testaceous; *clypeus* black, sides narrowly margined with testaceous; *ocelli* brown or black. *Antennæ* testaceous, 2nd joint black, shining; *setæ* brown or reddish-brown.

Thorax: *pronotum* black or fuscous black, finely crenulated, with a narrow, slightly curved, longitudinal line on either side of the centre: near the anterior margin two large black spots almost exterior to those on the crown; lateral and posterior margins testaceous, the colour in the former extending for a little way upon the disc in an angular shape. *Scutellum* testaceous, with a triangular spot at each basal angle, and a somewhat square patch in the middle, extending from the base to the transverse channel; or black, with the sides, between the transverse channel and the apex, narrowly yellowish-white. *Elytra* pale testaceous. *Clavus*—basal half of the central nerve white, on either side broadly margined with black, that next the suture shortest and widest; suture, at the base, pale. *Corium*—anterior marginal nerve interiorly narrowly black, 1st longitudinal nerve, for a short distance from the bifurcation, pale; inner longitudinal nerve, from the base to in a line with the bifurcation of the 1st nerve, pale. *Membrane*—nerves black. *Sternum* black. *Prosternum*—exterior and posterior margins very narrowly testaceous. *Legs* black; *thighs* of all the pairs at the apex, and along the upper margin, more or less broadly testaceous. *Tibiæ*—1st and 2nd pairs, base frequently, a somewhat broad band in the middle, and the apex narrowly testaceous; 3rd testaceous, more or less broadly black interiorly at the apex; exteriorly, with a black line frequently much interrupted. *Tarsi* brownish-yellow or fuscous; 3rd joint and *claws* black.

Abdomen black; external processes yellowish or yellowish-white.

♀. Much paler than the ♂, and with the nerves of the elytra and membrane legs broadly black; frequently the nerves are brownish, and the face is never black as in the ♂. Length, 1—1½ line.

Slightly shorter and stouter than *A. puncticeps*, and in the ♂ of a decidedly blacker hue. Its black face, sternum, abdomen, and legs will at once lead to its identity.

A very common species everywhere, both on the sea coast and inland, from July to September.

Species 3.—*AGALLIA BRACHYPTERA*.

Athysanus brachypterus, Boh., Handl., 20, 4 (1847).

Agallia brachyptera, Flor, Rhyn. Liv., vol. ii, 554, 2; Kirschb., Cicad., 151, 5; J. Sahlb., Not. Fenn., part xii, 154, 3.

Somewhat stout, testaceous-white. *Crown* broader and wider than in the two foregoing species. *Elytra* scarcely covering half the abdomen, rounded posteriorly.

Head: *crown* with a narrow, black, central line, carried down the face to a little beyond the ocelli, where it is widest, and, when viewed from the front, appears like an isosceles triangle; on each side of the central line, and nearer to it than the inner margin of the eyes, a large, round, black spot. *Face* with a black, oblique streak, extending from the ocelli to a little beyond the base of the

antennæ, from in a line with the base of the antennæ, a black 7-shaped character, margins very narrowly black; *cheeks*, at the apex, broadly black. *Antennæ* yellow; setæ brown.

Thorax: *pronotum* finely crenulate, with a broad, black, transverse streak at the anterior margin, extending almost from the anterior angle to in a line with the inner margin of the eye; below the streak, a transversely placed black spot, generally joined to the first named. *Scutellum* with a black triangular spot at each basal angle. *Elytra* scarcely covering half the abdomen, testaceous-white, finely punctured along the margins of the nerves, which do not enclose areas. *Clavus* not distinct from the corium, dark brown or blackish, inner nerve and apical half of the central nerve white, or testaceous-white; suture white. *Corium*—margin entirely white or testaceous-white; within the anterior marginal nerve a fine dark brown or blackish streak extends from the base almost to the apex; next the claval suture a large, black, clavate patch, the large end towards the apex. *Sternum* testaceous-white, sides broadly black. *Legs* testaceous-white; *thighs*—1st and 2nd pairs near the apex, on the upper-side, with a short fuscous or blackish longitudinal streak; 3rd, under-side, with a black longitudinal streak, extending throughout nearly their whole length. *Tibiæ*—1st and 2nd pairs exteriorly, at the base, brownish or fuscous; 3rd, along the inner margin, more or less fuscous or blackish; spines pale clear brown. *Tarsi* testaceous-white, apex of the 3rd joint narrowly and *claws* black.

Abdomen above, yellowish or testaceous-white; segments posteriorly, and a longitudinal line near the margin, black; beneath yellowish or testaceous-white, edges of the segments, next the outer margin posteriorly, black; external processes short, yellowish. Length, 1 line.

The macropterous form is unknown to me.

The description has been made from specimens taken by my friend, Mr. T. Wilkinson, of Scarborough, and has not previously been recorded as British. He found them towards the end of June on the North cliff amongst newly cut grass.

IDIOCERUS (see page 25).

Species 2a.—IDIOCERUS VENUSTUS, *sp. n.*

♀. *Head* yellow. *Crown* with a black lunate streak on each side of the centre. *Antennæ*—apical plate elongate-oval, black, basal third white. *Pronotum* black, with a broad, yellowish-white, central line. *Scutellum* yellow; basal margin, in the middle, with a narrow, triangular, black spot; basal angles with a large, triangular, black spot, to the apex of which is hooked on a small round spot of the same colour; from the transverse channel, towards the apex, on each side of the centre, is a short black streak. *Elytra* clear, transparent, shining; nerves stout, black, frequently interrupted at irregular intervals with short, yellow or yellowish-white, oblong spots or streaks.

Head yellow. *Crown* with a black lunate streak on each side of the centre, and a small round spot of the same colour just below its outer extremity; on the

frons, adjoining each eye, is a short, oblong, black spot; space between the ocelli, fuscous. *Face* with a longitudinal black streak on each side of the centre. *Loræ* and *cheeks* yellow, margined with black. *Antennæ* and *setæ* pale yellow; apical plate elongate-oval, black, basal third white. *Ocelli* black. *Rostrum* black, clothed with short golden hairs.

Thorax: *pronotum* black; posterior and side margins narrowly and a broad, longitudinal, central line yellowish-white; disc—the trapezoid patches more or less marbled with yellowish-white in the middle, and near the inner posterior angle with a small, distinct, yellowish-white spot. *Scutellum* yellow; middle of the basal margin and basal angles with a triangular black spot, and to the apex of the latter is hooked on a small round spot of the same colour; from the transverse channel towards the apex is a short black streak on each side of the centre. *Elytra* clear, transparent, shining. *Clavus* with an almost round pale yellowish-white spot, encircling the yellow apex of the central nerve; scutellar margin narrowly black, from thence to the inner edge of the pale spot broadly black; inner nerve yellow, base and apex black; central nerve yellow; at the base, interiorly, with a narrow black margin, and two short black streaks placed one opposite that on the inner nerve, the other adjoining the inner edge of the pale round spot; base, between the central nerve and claval suture, with a yellow triangular patch; claval suture black; apex, for some distance, and two or three short, oblong spots, yellow. *Corium*—inner longitudinal nerve black; apex, for some distance, and three short streaks, yellowish-white, two of which are between the base and transverse nerve; 2nd nerve, from the base to beyond the bifurcation, black; inner nerve of the bifurcation yellow, except the base, apex, a streak beyond the transverse nerve, and four or five minute spots before the latter, which are black; outer nerve of the bifurcation black, with three yellowish-white streaks before reaching the transverse nerve, and another (the longest) beyond the latter; 1st transverse nerve black. *Membrane*—nerves black. *Wings* clear, transparent, very iridescent; nerves fuscous-black. *Sternum* black. *Legs* black; *thighs*—1st and 2nd pairs yellow, with a broad, black, longitudinal streak on the upper- and under-sides; 3rd black, base narrowly, and upper and lower margin at the apex, yellow. *Tibiæ* yellow, all the pairs with the usual black spot, exteriorly, at the base; inner and outer margin of the 1st and 2nd pairs narrowly black; 3rd above, black, spines brown; next the spines, and under-side, more or less yellow. *Tarsi* yellow; base of the 1st joint of the 3rd pair narrowly, and apex of all the joints, fuscous. *Claws* black.

Abdomen black, posterior margin of the segments beneath narrowly yellow; last genital segment at the apex, on the under-side, yellowish-white.

Length, 2 lines.

This insect belongs to the same group as *I. lituratus* and *I. varius*. From the former it may at once be distinguished by the absence of the orange coloured anterior margin and granulated nerves of the elytra; from the latter by the want of the three black streaks on the anterior margin of the elytra; and from both by the more frequent pale spotting of the nerves. It stands nearest to *I. varius*, which species I have sunk (at present) as not British, because all the examples I have seen representing it are only *I. adustus*, H.-Sch.

Species 1a.—*BYTHOSCORUS RUFUSCULUS*, Fieb.

Bythoscopus rufusculus, Fieb., Verh. zool.-bot., Wien., 456, 1 (1868).

Pediopsis brevicauda, Thomson, Opusc. Ent., 318, 3 (1870) ; J. Sahlb., Not. Fenn., part 12, 124, 5 (1871).

♂. *Crown* with a black or fuscous transverse streak, extending to the eyes ; frons and *face* generally clear yellow, with a black transverse streak about in a line with the lower margin of the eyes. *Pronotum* blackish-grey, with numerous minute black spots between the crenulation. *Scutellum* brownish or rusty-yellow, with a black triangular spot at each basal angle, and a dark central line. *Elytra* clear, almost transparent ; nerves dark brown. *Clavus*—apex dark brown. *Corium* with a dark brown spot on the transverse nerves.

Head : *crown* with a black or fuscous transverse streak extending to each eye ; in the streak, at a little distance from the latter, may frequently be observed a black puncture ; adjoining the ocelli is a small black spot, and immediately below which is a black, transverse streak, not extending to the eyes. *Face* clear yellow. *Antennæ* and *setæ* brown.

Thorax : *pronotum* blackish-grey, with numerous minute black spots between the crenulation ; anterior margin behind each eye with a transverse, pale brownish-yellow spot. *Scutellum* brownish or rusty-yellow, with a black triangular spot at each basal angle, and a dark central line ; beyond the middle a deep \wedge -shaped depression ; apex finely wrinkled transversely. *Elytra* clear, almost transparent ; nerves dark brown or piceous. *Clavus*—between the apex of the nerves more or less dark brown or piceous. *Corium* with a dark brown or piceous spot on the anterior and posterior transverse nerves ; apical areas more or less dark brown or piceous. *Legs* yellow ; *thighs* and *tibiæ* frequently with a more or less distinct blackish streak along the exterior margin. *Tarsi* yellow ; 3rd joint and *claws* fuscous or black.

Abdomen above, black, posterior margins of the segments narrowly (except the two last, which are broadly) yellow ; beneath yellow, anterior margin of the segments fuscous ; last genital segment black ; on the side, at the base, somewhat brownish ; external processes yellowish-white, underneath slightly fuscous.

♀. *Head*, *pronotum*, and *scutellum* rusty-brown or yellowish, the latter sometimes with a darker triangular spot at the basal angles. *Elytra* clear and almost transparent, nerves brown or rusty-brown, spots on the transverse nerves paler than in the ♂. *Clavus*—inner marginal nerve white, except between the nerves and the extreme apex, which are brown. *Legs* as in the ♂.

Abdomen above, piceous, last segment rusty-yellow, posterior margin very narrowly yellowish ; beneath rusty-yellow, posterior margin of the segments paler ; last genital segment rusty-yellow, with a black puncture on the side.

Length, ♂, $1\frac{3}{4}$; ♀, 2 lines.

Smaller and stouter than *B. fruticola*, with which species (like

B. alni) no doubt it has hitherto been mixed up in collections. The transverse streak on the crown and face, the clear elytra, in both sexes, and the spot on the transverse nerves are excellent characters whereby to distinguish it from either of the other British species.

I am indebted to my friend, Mr. T. J. Bold, for calling my attention to this interesting addition to our fauna. The specimens he submitted to me were taken at Gibside (Durham), and Gosforth and Wooler (Northumberland), by general beating. I have also detected specimens in my own and Mr. Douglas's collections, taken at Cobham Wood, Folkestone and Dartford Heath. Time of appearance—July, August, and September.

The following is the list of additions to science and our fauna in this group:—

Idiocerus venustus, Scott.

„ *H-album*, Fieb.

„ *confusus*, Flor.

„ *fulgidus*, Fab.

Bythoscopus rufusculus, Fieb.

„ *alni*, Schrank.

Pediopsis tiliaë, Germ.

„ *cerea*, Germ.

Pediopsis ulmi, Scott.

„ *impura*, Boh.

„ *distinctus*, Scott.

„ *fuscineris*, Boh.

„ *tibialis*, Scott.

„ *nana*, H.-Sch.

Agallia brachyptera, Boh.

37, Manor Park, Lee, S.E. :

December, 1873.

NOTES ON CERTAIN SPECIES OF THE GENUS *ORTHOSTIRA*, FIEB.,
WITH REFERENCE TO MR. DOUGLAS'S REMARKS, *ante* p. 187.

BY JOHN SAHLBERG.

[The following notes are contained in a letter I have received from Dr. Sahlberg, and he gives me permission to translate and publish them in this Magazine.—J. W. Douglas].

1. *O. cassidea*, Thoms. Your observation that this cannot be Fallén's species appears to me to be quite correct, judging from Fallén's description, which agrees much better with *O. cassidea*, Fieb., = *brunnea*, Germ., but which is not known to me, and which Thomson does not know from Scandinavia. On the other hand, it appears to me that Thomson's species is certainly identical with *O. cervina*, Fieb. The definition "prothorace angulis anticis rotundatis" is indeed not exact, but examples vary somewhat in this respect. Fieber also him-

self says (Ent. Monogr., p. 49) "Hals- und Schulter-winkeln *stumpf*," although he afterwards says "die Halsecke rechtwinkelig." The much broader ♀ has also generally more obtuse anterior angles of the pronotum than the ♂. Only the brachypterous form is known to me. Scarce.

2. *O. platychila*, Fieb., Thoms., = *intermedia*, Flor. The macropterous form is extremely like the macropterous form of *O. nigrina*, Fall., but it is of a somewhat darker colour, has long frontal spines, and somewhat differently areolated elytra. Very scarce.

3. *O. nigrina*, Fall., Thoms., = *cinerea*, Fieb., F. Sahlb. (f. brachypt.), *nec* Flor. The macropterous form is very scarce; the brachypterous form is generally distributed.

4. *O. cylindricornis*, Thoms., is very like *O. macrophthalma*, Fieb., = *O. cinerea*, Flor., = *O. pusilla*, Fieb., ♂. Thomson says, without reservation, "area discoidali 3-seriatim areolata," and Fieber "mit 4 Reihen," but I believe that the ♂ most frequently has three rows. The name *macrophthalma* must be adopted for the species. Scarce; I know only the brachypterous form.

5. *O. parvula*, Thoms., = *O. obscura*, Fieb., but I know not if it = *Tingis parvula*, Fall. The brachypterous form not scarce in S. Finland, the macropterous very scarce. Very similar in form to *O. gracilis*, Fieb., but is soon distinguished by the broader and much shorter 4—5 areolated discoidal area of the elytra.

6. *O. biseriata*, Thoms., = *O. gracilis*, Fieb., forma brachypt. The remarks made respecting *O. cylindricornis* are applicable to this species. Fieber's name must be retained. Scarce in S. Finland; both forms taken by me in Karelia.

7. *O. recticosta*, Thoms. Unknown to me; probably not distinct from *O. gracilis*, Fieb.

Helsingfors: January, 1874.

NOTES ON BRITISH TORTRICES.

BY C. G. BARRETT.

(continued from p. 149).

A change of residence and other circumstances have compelled me to suspend these notes for a time, but at the same time have afforded me the opportunity of correcting some errors in those previously published.

To these I will advert before proceeding further:—

Semasia obscurana, Steph. (*ante* p. 145).—I now find that *Pædisca obscurana*, H.-S., which I supposed to be another species, is certainly this insect, and was probably figured from one of Mr. Doubleday's specimens. Nevertheless, Dr. Wocke places it next to *trigeminana*, and gives only Austria as its locality.

Stigmonota Weirana, Doug. (*ante* p. 147).—I have seen many more specimens of this species in London collections, and am now convinced of its distinctness from *nitidana*, Steph.; but as the "further information" which I asked for seems likely to be forthcoming next summer, further particulars must be deferred for the present.

Stigmonota orobana, Tr. (*ante* p. 148).—I omitted to notice that Wilkinson's figure 2, plate 2, although called *dorsana*, really represents this species. His description would include both.

Asthenia coniferana, Rtz. b.—Mr. Sang (Intellig. No. 192) states that he has bred this species from dull yellowish, spotless larvæ, with pale brown heads, feeding in the bark of Scotch fir, and expelling their frass through holes in the outer bark.

ASTHENIA COGNATANA, *sp. n.*

Head, antennæ, palpi and thorax dark grey. Fore-wings glossy, dark brownish-grey, with silvery markings, consisting of a triangular dorsal blotch—curved outwards at the apex, and broad at the base, enclosing a triangular brown spot—and five very oblique geminated costal streaks, the second being produced into a narrow fascia or line, which, passing down the anterior margin of the ocellus, bends beneath it towards the anal angle. Ocellus barred with alternate black and silvery lines, much obscured by yellowish scales. Cilia dark grey, with two or three silvery spots. Hind-wings brownish-grey. Alar. exp. 6 lines.

Closely allied to *coniferana*, Rtz. b., and hitherto confounded with it, but distinguishable by the greater breadth of its fore-wings, the broader and more curved dorsal blotch, the far more oblique costal streaks, and the outward curvature of the delicate silvery fascia, which, in *coniferana*, bends inwards towards the dorsal blotch. It is also a larger insect.

This species seems to be in very few collections. Some years ago I received specimens from Scotland under the name of *coniferana*, but more recently meeting with true specimens of that species in Hampshire and Norfolk, was struck with their distinct appearance;

and, when looking over Mr. Bond's collection a few months ago, found that he also had separated them. He writes:—"I have always thought the large insect to be different from the smaller one, the fore-wings appear to me to be much broader and the markings very different. I have two specimens taken by Weaver a long time ago in Scotland, and a pair taken in Morayshire by Bouchard."

Among a lot of interesting *Tortrices* taken at Braemar by Dr. White, is also a specimen of this species. It seems, therefore, to be widely distributed in Scotland, where also the true *coniferana* is not scarce.

Ratzeburg's figure of *coniferana* refers clearly to the smaller insect.

Asthenia cosmophorana, Tr.—M. Jourdheuille says—"Larva under bark of spruce fir, in the places where that of *Retinia resinella* has fed."

Asthenia strobilella, Linn.—A new species from Breda has just been described in the 'Petites Nouvelles Entom.' under the name of *conicolana*, Heylaerts. It is described as nearly allied to *cosmophorana*, but distinct; and I am informed that it is also distinct from *strobilella* (to which the description seems rather to point), and that its larva feeds in cones of *Pinus sylvestris* on the higher branches of the trees, in consequence of which it has hitherto escaped observation.

This species ought also to occur in this country.

Asthenia splendidulana, Gn.—This species is inserted twice over in Dr. Wocke's list: first in the genus *Semasia*, with *strobilana*, Haw., and *fraternana*, Steph. and Wood, quoted as synonyms; and again in the genus *Phthoroblastis*, where Wilkinson's description is given as a synonym of *plumbatana*, Zeller.

Prof. Zeller pronounces our species to be identical with his *plumbatana*; and, as it is impossible to speak with certainty of Stephens' *fraternana*, Guenée's name, having the priority, must be retained.

Asthenia pygmæana, Hübn.—I am indebted to Prof. Zeller for a German specimen of this, which agrees excellently with Wilkinson's description. It is also Haworth's *subsequana*, the extraordinary confounding of which with *monticolana*, Dup., *plumbagana*, Wilk., &c., by Dr. Wocke, has already been noticed under the head of *Dicrorampha plumbagana*.

Retinia Buoliana, Schiff.

Retinia pinicolana, Dbld.—German entomologists consider this

to be a variety of *Buoliana*. Dr. Wocke, in his list, sinks it as such, and Prof. Zeller considers the colour of the specimens to vary to some extent according to the species of pine upon which the larvæ have fed. I am, however, like our best English entomologists, strongly of opinion that the species are distinct, and I look upon the longer and more pointed fore-wings, as well as the brighter colour and more defined silvery white markings of *pinicolana*, as good distinguishing characters. Prof. Zeller tells me that he has separated the two forms in his collection for future investigation, so I hope he may in time see reason to agree with our opinion.

Mr. N. Greening, of Warrington, who has taken and bred *pinicolana* freely, tells me that it differs from *Buoliana* in habits and time of appearance. He says that when *Buoliana* is getting worn (about the beginning of July) is the time when *pinicolana* makes its appearance, and that, while *Buoliana* is coming out, *pinicolana* is to be found as a full-fed larva or pupa in the fir shoots. Also that when it has made its appearance in the perfect state it is far more sluggish than *Buoliana*, falling to the ground when the fir trees are struck and hiding itself among the grass or heather; while the latter species, instead of falling, flies about the trees and settles on them again. Moreover, he says that *Buoliana* flies of its own accord for three hours—from three to six p.m.—on fine days, dashing round the trees, while *pinicolana* merely flies for about an hour, later in the afternoon, and then not in the same lively zig-zag manner, but tolerably straight from tree to tree. This evidence as to the distinctness of the two species seems to me of great value.

Retinia pinivorana, Zell.—I reared this species rather freely from larvæ collected in Woolmer Forest some years ago. They seemed to affect the young *side* shoots of Scotch fir rather than the central one. Particulars may be found in Ent. Mo. Mag., v, pp. 178—9.

German specimens of this species seem to be paler than ours.

Retinia resinella, Linn.

Retinia sylvestrana, Curt. — Apparently a rare species on the continent.

Retinia duplana, Hübn.—Prof. Zeller tells me that this species flies in April and the beginning of May.

Retinia Turionella, Linn.—Dr. Wocke refers Linné's *Turionella* (with doubt) to *Buoliana*, and substitutes *Turionana*, Hübn., for this species.

Wilkinson was misinformed about the habits of the larva. It does not cause the shoots to *droop*, since it is full-fed and has usually assumed the pupa state before they have commenced to grow; thus the shoot in which a larva has fed remains stationary when those around it are growing. As the habits of this species have already been recorded (Ent. Mo. Mag., v, p. 178), I need not further refer to them here.

Retinia occultana, Dougl.—Dr. Wocke sinks this name in favour of *pinicolana*, Zeller, regarding, as I before observed, *pinicolana*, Dbld., as a variety of *Buoliana*. Believing that species to be distinct, I am satisfied that Mr. Douglas's name must be retained for this.

Pamplusia monticolana, Mann.—Dr. Wocke corrects this to *mercuriana*, Hübn., an earlier name, quoting Wilkinson's description as synonymous.

This species is figured by Wood under the name of *subsequana*, and therefore contributes to the confusion already noted in Dr. Wocke's list between *subsequana*, Haw. (*pygmæana*), *monticolana*, Dup., and *plumbagana*, Wilk.

Mr. Stainton tells me that Herr Ernst Hofmann has bred this insect from larvæ found feeding on *Dryas octopetala*, and that he has himself noticed it frequenting that plant in the Engadine. It must, however, have some other food-plant on our northern mountains, as the *Dryas* is more local than the moth.

Heusimene fimbriana, Haw.—M. Jourdheuille states in his calendar that the larva of this species feeds in decayed oak wood. A specimen was reared some years ago by my friend, Mr. H. Waring Kidd, from among a lot of galls of *Cynips lignicola*, probably from an old gall. It seems to be very rare on the continent.

The six species placed by Wilkinson in the next genus—*Endopisa*, have already been noticed (Ent. Mo. Mag., ix, pp. 28—31).

(To be continued).

DESCRIPTION OF A NEW SPECIES OF *CHARAXES* FROM THE WEST COAST OF AFRICA.

BY W. C. HEWITSON, F.L.S.

CHARAXES CEDREATIS, sp. n.

Upper-side: ♂ ochreous-brown. Anterior wing with the apical half black, crossed at the middle by a curved quinquefid band of white, followed near the costal margin by two spots of pale blue, and nearer

the apex by two spots of white, and below these and parallel to the outer margin by three blue spots; besides these, there are two white spots at the anal angle. Posterior wing with two tails, the outer margin broadly black, traversed by a series of seven white spots and a sub-marginal linear rufous band.

Under-side: pale rufous-brown, tinted with carmine. Anterior wing with the white band and sub-apical spots as above, ten spots near the base, two near the costal margin, and two near the anal angle, all black, crossed before the apex by three bands of brown spots. Posterior wing with a black linear spot in the cell, crossed before the middle by two linear bands of black, the outer band zig-zag; crossed beyond the middle by two undulate bands of pale brown-black when they approach the anal angle; the sub-marginal white spots as above, and three black spots below it at the anal angle.

♀ like the ♂, except that there are no blue spots on the upper-side of the anterior wing.

Exp.: ♂, $3\frac{1}{10}$; ♀, $3\frac{1}{2}$ inch.

Hab., West Africa.

Both sexes of this species have a resemblance to the female of *C. Tiridates*.

Oatlands, Weybridge:

March, 1874.

OCCURRENCES OF DIURNAL LEPIDOPTERA AT GALENA, ILLINOIS, 1871-73.

BY THOMAS E. BEAN.

Papilio Thoas.—Quite uncommon. In three years I have taken only two specimens; one, in fine condition, August 15th, at flowers of *Silene armeria*, the other, badly worn, September 8th, at thistle bloom. It is a southern species.

P. Troilus.—Scarce; one ragged specimen, late in August, at flowers of *Phlox decussata*. Said to be common in Georgia, U. S.

P. Turnus.—In some seasons this is not uncommon for about three weeks in June, but usually it is rather scarce; it frequents flowers of red clover, and, when feeding, is easily captured. This species seems more abundant further north, as in Canada and (notably) in Maine.

P. Asterias.—Common; very variable both in size and markings; winter pupæ develop early in June, and the second brood appears at

midsummer or a little later; it frequents flowers of *Silene*, &c., in gardens, and also the wild *Asclepias cornuta*. The ♂ varies in expanse from $3\frac{1}{4}$ to $3\frac{7}{8}$ inches; the ♀ is sometimes fully $4\frac{1}{2}$ inches.

Pieris oleracea.—Hitherto rare; in three years I have only taken two specimens, June 18th and 29th. I have, indeed, noticed two others about the same time of the year.

[*P. rapæ*.—Not yet observed, but it will probably be here shortly, as it is said to have reached Ohio.]

P. Protodice.—Abundant during August and September in localities where its food-plants (naturalized species of *Sinapis*, &c.) are common. It frequents the flowers of native Asters, also those of the nauseous Mayweed (*Maruta cotula*). I have taken specimens from the first week in June to the third week in October, ♂ much more common than ♀.

Towards night these butterflies may be easily captured without using a net. As evening approached I have often observed them when at rest for the night sitting on the *light coloured flowers* of native Asters, or on the *light coloured radical leaves* of the mullein (*Verbascum thapsus*), or on the *white flowers* of the Mayweed; but so correct is their instinct in avoiding contrast of colours when choosing their nightly abodes, that, to casual observation, they would be by no means conspicuous.

Colias Cæsonia.—Tolerably common in its localities in August and September, the ♂ much more common than the ♀; the latter sex varies much, differing greatly from the ♂ in late specimens. There is probably but one brood in the year. It is a southern species.

C. Chrysotheme.—Much less common here lately than any other species of the genus, and scarcer than usual last summer. Specimens have been taken from the third week in June to the second week in October. The ♂ more abundant than the ♀, at least as two to one. The ♀ varies especially in depth of colour, and the ♂ varies in size and in breadth of border.

C. Philodice.—The commonest butterfly we have, and far more variable both in size and markings than any other species. I have ♂ specimens which expand from $1\frac{7}{8}$ to $2\frac{3}{8}$ inches, and ♀ specimens $1\frac{3}{8}$ to $2\frac{1}{2}$ inches. It is most abundant during August and September. A variety of the ♀, nearly white, is very scarce.

Terias Delia.—Scarce. Specimens in good condition, taken in August and September.

Danaïs Archippus.—Common; the larva feeds on *Asclepias cornuta*, and the imago frequents the fragrant flowers of the same plant. The largest specimens expand above $4\frac{1}{4}$ inches. The two sexes are about equally common. The southern species, *Danaïs Berenice*, measures about $3\frac{1}{2}$ inches.

Argynnis Idalia.—Scarce; worn specimens taken the third week in August.

A. Cybele.—Tolerably common at thistle flowers on fine days early in September. Large ♀ specimens expand $3\frac{3}{4}$ inches. It varies but little, and the sexes do not differ much; it is noticeably larger than the following species.

A. Aphrodite.—Common early in July at the flowers of *Asclepias cornuta*, and sometimes it resorts to red clover. It flies very swiftly, and is a wary insect. Much more variable than *Cybele*, and the sexes differ more. Very near to *Cybele* in markings, but a close comparison shows some constant differences. The more obvious distinctions are that it is smaller than *Cybele*, and redder. Early specimens taken June 29th. Expands from $2\frac{3}{4}$ to $3\frac{3}{8}$ inches.

A. Bellona.—Uncommon; fresh specimens taken the first week in July.

A. Myrina.—Not very common; it seems to be somewhat local.

Melitæa Phaeton.—Scarce; one wasted specimen taken the second week in July.

Phyciodes Tharos.—Common in low grounds.

Grapta interrogationis.—Not very common here; it is a very handsome insect when in good condition. Fine specimens taken in the middle of August and second week of September.

G. comma.—More frequent than the last. Good specimens taken about the middle of September. No doubt we have also *G. Progne*.

Vanessa Antiopa.—Not uncommon. Fine specimens seen in June and July, and captured in the first week in August and second week in September.

Pyrameis Atalanta.—Common; fresh specimens the last week in June.

P. cardui.—Rather common.

P. Huntera.—Much less common than the preceding. It frequents the flowers of a native species of *Aster*. A fine specimen taken September 14th.

Nymphalis Arthemis.—Scarce; I have only heard of one capture here. It is a northern species.

N. Ursula.—More common, frequenting yards and gardens in June. Said to be common southwards from here.

N. Disippus.—Quite common, in low grounds, in August and September. Fine specimen taken September 10th. The ♀ is duller than the ♂, and also differs in having a white costal spot above. In size it varies from small males $2\frac{1}{2}$ inches, to large females $3\frac{3}{8}$ inches in expanse. It simulates *Archippus*.

Neonympha Eurytris.—In some years this is very common for a few weeks in June. In 1872 it was scarce, but it was extremely abundant in the middle of June, 1873, and very scarce before the end of that month.

Satyrus Alope.—Scarce; one wasted specimen taken.

Debis Portlandia.—Only one has been taken here so far as I know.

Polyommatus (Chrysophanus) Thoe.—Rather common in low grounds. Fresh specimens were taken abundantly in 1873, middle of June and week following.

Goniloba (Eudamus) Tityrus.—Rather common.

Hesperia Wansutta.—Rather common.

H. Ahaton.—Rather common.

In addition to the foregoing, we have species as follows, of which I have specimens:—

Thecla: three species, including probably *liparops* and *falacer*.

Polyommatus: one species—*Comyntas*?

Hesperia: one other species—*Hobomok*?

Nisoniades: two species.

Syrichthus: one species.

Also a species allied to *Melitæa*, and one allied to *Argynnis*, thus making in all at least 44 species.

Galena, Illinois, U.S.A.: March, 1874.

Interesting variety of Dromius quadrimaculatus.—The most interesting and very pretty variety of *Panagæus quadripustulatus* figured in the last "Entomologist's Annual," has reminded me of a precisely similar instance of variation in an example of *Dromius quadrimaculatus* in my own collection, in which the upper and lower

spots on each elytron have become confluent by the almost entire disappearance of the central black transverse fascia, and form an undulating longitudinal mark somewhat as in *Phyllotreta sinuata*. The *Dromius* seems, as a rule, to vary but very little, and then only as regards the size of the spots. In Yorkshire, where the insect was extremely abundant under loose beech bark, I used regularly to examine the specimens in hope of finding some notable variety, but was quite unsuccessful. The above mentioned specimen was kindly given to me by Mr. G. H. Verrall, with many of the type form, and was, I believe, taken by him some years ago near Lewes.—EDWARD A. WATERHOUSE, British Museum: February 28th, 1874.

[Dr. Schaum, Ins. Deutschl., i, p. 271, records the capture, in Mark Brandenburg, of a somewhat similar variety of the allied *Dromius quadrinotatus*, in which the larger front elytral spot was entirely confluent with the hinder one, and there remained only an irregular patch of brown colour, occupying the outer and hinder fourth of each elytron.—E. C. R.]

Scotch form of Pterostichus nigrita.—There is a small *Pterostichus* not uncommon on some of the mountains near Braemar, which seems to correspond in respect of size and general build with the description of *P. rheticus*, Heer, being smaller and narrower than ordinary specimens of *nigrita*. In other respects, however, it does not fit the description of *rheticus*, which (if Heer's description be accurate) it is hard to believe can be (as Dr. Schaum says) a mere var. of *nigrita*. The insect of which I write differs from *nigrita* (besides in the respects already mentioned) in having the anterior angles of the thorax somewhat less produced, and the elytra duller, with distinctly flatter interstices.

Among other interesting vars. that I observed last summer near Braemar, I may mention *Loricera pilicornis* with the elytra almost entirely ferruginous, and *Agabus arcticus* (var. β , Gyllenhal), in which the thorax and elytra are, with the exception of a narrow testaceous margin, uniformly blackish-brown.—THOMAS BLACKBURN, Greenhithe: March, 1874.

Recent captures of Coleoptera near Chatham.—Since the middle of January last, I have had occasional opportunities of hunting for *Coleoptera*; and a list of the better species found by me within a radius of four miles from Chatham may be interesting, as showing what may be done during the "unprofitable" months of January and February.

Many of my captures were made in an old fallen beech tree, in an advanced stage of decay, and riddled in every direction with the burrows of departed generations of wood-feeding beetles; this tree had been some time previously well investigated both by myself and Mr. Champion, but we had evidently far from exhausted it. In the sounder portions of the tree, *Melasis buprestoides* rather astonished me by turning up in unexpected profusion—one spell of about an hour, with no better weapon of attack than a pocket-knife, yielding me over sixty good specimens, mostly males; while in the chinks of the rotten wood, and under the few remaining bits of loose bark, I picked up, in several visits, *Bolitochara bella* and *lucida*, *Bolitobius cingulatus* (4), *Quedius scitus*, *Bythinus Curtisi* (in swarms), *Scaphidium 4-maculatum*, *Penidium turgidum*, *Abræus globosus* (common), *Ennearthrum cornutum*, *Orchesia undulata* (common), and many others of less interest.

By shaking moss, chiefly in woods, and about bushes, &c., on the chalk-hills, I obtained *Drypta dentata*, *Lebia chlorocephala*, var. *chrysocephala*, *Oxyptoda nigrina*, *Mycetoporus nanus*, *Euryporus picipes* (three specimens, in long wet moss in a wood; this rare insect is easily distinguishable among the accompanying *Quedii* and *Philonthi* by its sluggish movements), *Corticaria cylindrica* (not rare), *Platytarsus setulosus* (1), *Liosomus troglodytes*, Rye (4 examples, along with the *Platytarsus*), *Hypera suspiciosa* and *plantaginis* (both common), *Tychius Schneideri*, *Lamprosoma concolor*, *Cassida vittata* (one specimen; a most beautiful insect when alive), *C. vibex*, *obsoleta*, &c.

In a little marshy hollow, I obtained among others, *Philonthus fumarius*, *Lathrobium angustatum* (not rare), *Limnichus pygmæus*, and *Graptodera consobrina*; the latter in abundance at the roots of *Epilobium*.

Tidal refuse, on the banks of the Medway, did not equal my expectations; *Mecinus collaris*, *Phytobius 4-tuberculatus*, and *Phædon concinnum*, being the only species therein worth mentioning.

A day's excursion to Faversham, in January, produced two more *Liosomus troglodytes*, with one ♀ of *L. oblongulus*, in its old locality; also from moss in the same place, *Homalota testaceipes*, *Euryporus picipes* (1), *Ceuthorhynchideus hepaticus* (2) and *versicolor*, &c.—JAMES J. WALKER, R.N., 7, West Street, Blue Town, Sheerness: March 9th, 1874.

Note on Argynnis Niobe.—At page 154 of "The Entomologists' Annual" for the present year, Dr. Knaggs states that "we have, as yet, no evidence of the occurrence of the female in this country."

Last autumn, Mr. Parry sent me two specimens (one of which Mr. Edward Newman saw alive) for examination. He stated that he took them a few miles from Canterbury. These two specimens were females, and very different on the upper surface from the same sex of *Adippe*, in fact, they were more like dark females of *Aglaia*. I am not quite certain about the sex of the specimen said to have been taken in the New Forest. I have no doubt about the species, but I do not wish to express any opinion as to their origin.

Mr. Barrett asked me whether I thought *Tortrix ribeana* and *cerasana* were species or only varieties. Dr. Knaggs quotes a portion of my reply, and appears to infer that I had only once seen the two forms in copulation. I have seen them so repeatedly, and as the larvæ are similar, I have no doubt of their being varieties of one species.—HENRY DOUBLEDAY, Epping: March 14th, 1874.

Notodonta bicolora in England.—The editorial note at the foot of page 230 of the present volume applies, I presume, only to the claims of this insect to be considered Irish, and will not, I hope, prevent me from recording the following particulars with regard to its capture in England.

In or about the year 1862, Mr. Joseph Smith, an operative in Manchester, went to collect insects in the Burnt Wood, Staffordshire, a number of Entomologists having subscribed to pay his expenses, and his captures being agreed to be divided into a certain number of shares. Amongst other species captured by him was a single specimen of *N. bicolora*, which was slightly injured from his putting it into his tobacco box (as Mr. Brewer did the first *Trochilium chrysidiforme*). On the division of the shares, there was a pretty little squabble as to who was to have this

specimen, and I was appealed to several times; ultimately, the specimen fell into the hands of the late Mr. Carter, and is now, I believe, in a collection near Derby.

Smith was sent again the following season, and he and Mr. Carter and others went to Burnt Wood for several years without success. In 1865, Mr. Joseph Chappell, in company with a friend, succeeded in finding a specimen under circumstances which gave a clue to the habits of the insect, and they came home with about half-a-dozen examples of it. From one of these Mr. Chappell obtained eggs, and a considerable number of larvæ; but, owing to ill luck with the food, he only reared six or seven perfect insects, and could not keep up the brood.

I saw the captured specimens, the eggs, and the larvæ in various states, and Mr. Chappell kindly gave me one of the captured and one of the bred specimens; he also sent a specimen, at my request, to Mr. Doubleday, of Epping.

N. bicolora is, in my opinion, without doubt to be found in Burnt Wood, by any one who knows when, where, and how to search for it.—JOSEPH SIDEBOTHAM, 19, George Street, Manchester: 11th March, 1874.

[Mr. Chappell's captures are already recorded in Vol. ii, p. 47, of this Magazine.—EDS.]

Description of the larva of Caradrina Morpheus.—While searching for larvæ in an orchard, in the evening of September 12th, 1864, I found a small larva, then unknown to me, feeding on the lower leaf of a dwarf bramble close to the ground; as it appeared mature, while it was before me to be figured, the next day I was induced to provide it with earth as well as with food, and before long, after feeding a little, it spun itself up in an earthen cocoon placed just beneath the surface of the soil, and attached to a leaf and part of the stem of the bramble; from this a fine female specimen of *Morpheus* emerged on the 7th of June, 1865.

Since this, my first introduction to the species, having been desirous of a further acquaintance with the larva, for the purpose of testing the correctness of its assigned habit of hibernating and feeding again in the spring, I feel greatly indebted to Mr. W. H. Harwood for sending me five larvæ on September, 29th, 1871; these he had found with several more chiefly on *Sedum telephium*, but a few on willow, and one on *Galium mollugo*.

These larvæ fed very well on the *Sedum* as long as it could be kept in good condition, but the plant soon died off, and then, amongst a variety of other food supplied, willow obtained the preference. Their progress was slow, and they delayed spinning until the 15th of October, when the first formed its cocoon in a willow leaf; on the 18th, two spun up in dock leaves; on the 22nd, one in a willow leaf, and the last, on the 2nd of November, also in a willow leaf. No earth was allowed them, in order that I might be better able to observe their behaviour, and inspect their cocoons from time to time; these at first were sufficiently clear when held between the light and the eye to show the form of the larva within, but in a few days their opacity increased and baffled observation. However, towards the advent of spring, I made myself certain of their containing their inmates, and on the 11th of June, 1872, a female moth appeared; after waiting a few days, I opened the four remaining cocoons, and found a pupa in one, and in each of the others a shrivelled dead larva, and was thus confirmed in my belief that they had all fed up in autumn.

The full-grown larva, when stretched out, is from one to one and one-eighth

inches in length, of uniform and very moderate stoutness, the head the smallest segment, and the thirteenth a little tapered, it is noticeable that the tubercular small warty dots bear each an exceedingly fine and pointed hair hardly to be seen, in this respect very unlike the blunt bristles of some of its congeners. In colour it is either a warm brown or a greyish-brown, the sides being the part rather the deepest in tint; the spiracular region, belly, and legs of a paler tint of brown; the rather shining brown head freckled with darker, and having a dark brown streak down each lobe; the second, third, and fourth segments show but little markings, if any, of the dorsal paler line, whilst on all the others it appears only in an interrupted manner through a series of diamond shapes of darker brown freckles, two joined end to end on each segment, the anterior one very small, the other extending back to the fold; the fine sub-dorsal line is paler, bordered by a darker brown line, and this on the fifth to twelfth segments inclusive bears on the anterior half of each a conspicuous blackish mark much resembling an arrow point barbed behind, the upper barb sometimes prolonged faintly in brown atoms towards the hinder part of the chief dorsal diamond; the sides bear some faint zig-zag rows of dark brown freckles; the spiracles are of the ground colour faintly outlined with blackish, not very noticeable; the belly is less freckled with brown, and has some few spots paler than the ground.

The pupa is not quite half-an-inch in length, moderately stout, the wing cases rather long, and the tip of the abdomen terminated with two minute bristles curved at their extremities; the colour is dark reddish-brown and very shining; the cocoon is rather tough.—WILLIAM BUCKLER, Emsworth: *March 10th, 1874.*

Notes on the larva of Eubolia lineolata.—The following account has been drawn up from observation of many broods, kindly sent me from different localities during a period of several years, and touches on a few points which I do not remember to have seen noticed elsewhere.

The moth is noted as being on the wing in every month from April to August, but I do not know that there are more than two broods in the year; for the first, May would be the month, early examples appearing in April, and late ones in June; and in like manner the second brood would be seen in July and August.

The egg and larva states of the two broods do not differ much in duration; the larvæ come to hatching from eight days to rather more than a fortnight after the eggs are laid, and feed up in the course of from four to six weeks; the speed of development in each case depending on the character of the season; but, whereas the spring flight has been eight months in the pupa, having passed the winter in that state, the summer flight of moths comes out after little more than a fortnight's stay in the pupa.

The food on which I have taken the larva at large is *Galium verum*, and I have reared it on *G. saxatile*, but it does not seem to care so much for *G. mollugo*. I have noticed that the moth is fond of resting on the coarse grasses, which grow in its sandy habitat near the sea, where I have been accustomed to take it.

The egg is rather a long oval in outline, the broader end being also thicker than the other; it is flattened, but is deposited almost upright on its smaller end, in little clusters; the shell is polished, but not brightly, and is very faintly reticulated all over; the colour at first pale straw, soon becoming almost orange, and at last pale brownish-ochreous.

The larva, when first hatched, is yellowish-ochreous in colour, with a faint, dusky, suffused stripe down the back, and a sub-dorsal line of the same, the head deeper yellow, the usual dots small and black: when it begins to feed, the food shows dull green in the middle of the body, the rest remaining still ochreous, but it soon becomes pale greyish-green all over; when rather less than half-grown, it is greyish-green above, with a dark green dorsal line, and a brownish stripe above the spiracles, all below being yellowish-green or whitish-green. When full-grown, the length is about seven-eighths of an inch, the figure slender, uniform in bulk when viewed from above, but when viewed sideways tapering towards each extremity; the head nearly as wide as the second segment, somewhat flattened, but the lobes with rounded outline. The colour is variable above, the back being dull pink, lighter or deeper in tint, warm brown or olive-brown; the dorsal line is dark brown or blackish-green, sometimes bordered with yellowish-pink; the fine sub-dorsal line is yellowish on segments two, three, eleven, twelve, and thirteen, on the rest being of a paler tint of the ground-colour; the space between the sub-dorsal line and the spiracles is filled up with two dark stripes of even width, sometimes separated by a very fine pale thread, the upper stripe being dull purplish-pink, pinkish-brown, or olive-brown, the lower dull blackish-green, or almost dull black; just on the lower edge of this dark stripe come the black spiracles; all the under surface is pale yellow, palest immediately below the spiracles, and with a paler line through the middle of the belly; the head is yellowish freckled with brown, the sub-dorsal lines showing on it free of freckles; the anal and ventral legs tinged with dull pink or purplish-pink, the anterior legs more yellowish; the usual dots small and black, and bearing fine black bristles. I have notes of one larva, in which the yellow lines on the back and sides were so much widened, and the darker lines so narrowed, that the general effect was as if the back were coloured greenish-yellow: another, a brown variety, had the sub-dorsal line bordered above by a dark brown dash at the beginning of each segment, thus presenting the appearance of a dorsal pattern.

The cocoon is very slight but regular in outline, formed just under the surface of the sandy soil, and attached to a leaf or stem: the pupa is barely one-third of an inch in length, cylindrical and full, stoutish about the thorax, and with the abdomen tapering off rather rapidly; the eye-cases prominent; the anal tip ending in a conical spike, furnished with two sharp spines set like the sides of a V; the colour a rich, dark, glossy brown, the abdominal rings paler, with a reddish tinge.—J. HELLINS, Exeter: 10th March, 1874.

Note on travelled pupæ.—There seems to be an impression in some quarters that pupæ suffer from a journey. Having received large quantities by rail in various years, I have found no greater loss in these than in pupæ dug near home. If sent by post, more care and more cotton seem requisite than are often bestowed. But the great danger to pupæ is keeping them in too dry an air. The air of a tool-house or cellar is more suitable than that of a living-room. Where pupæ are enclosed in a hard cocoon like some of the genus *Cucullia*, they are apt to be more tender than others, and to get bruised unless very softly packed. For such I recommend the softest and best cotton, sometimes sold as medicated cotton by Chemists. One great advantage of having pupæ sent is the chance of fine varieties, and the chance, of course, of breeding from these. In an indifferent year like 1873, my good pupæ

gave me a good season, and made me independent, in a measure, of the ungenial spring and early summer. Granting, in short, that ova and larvæ are very conveniently exchanged by rail or post, I maintain that pupæ come next to these, and are more safely sent on their travels than the imago.—B. SMITH, Marlow: February, 1874.

Capture of Halonota grandævana near Hartlepool in 1864.—Amongst some un-named Micros collected in 1862—64, which I sent to Mr. Hodgkinson, of Preston, last year, was a *Tortrix* which he now writes me has been returned to him by Mr. Stainton as *Halonota grandævana*; this should, therefore, have been on our British list since 1864, if not a year or two earlier.—J. GARDNER, 8, Friar Terrace, Hartlepool: March 18th, 1874.

Description of the larva and case of Brachycentrus subnubilus, Curtis.—At page 166 of Vol. ix of this Magazine, I gave a few notes on the larva of *Brachycentrus*, showing that its association with the hitherto somewhat enigmatical quadrangular cases often described, was founded on fact, Mr. W. C. Boyd having reared young larvæ from the egg, and the cases they formed being decidedly quadrangular. But, owing to the untimely decease of these larvæ, further description was then impossible. With praiseworthy pertinacity, Mr. Boyd, in the spring of 1873, renewed his investigations. Eggs laid by females in March of that year were placed in an aquarium with *Conferva*, &c.; soon afterwards he again had the satisfaction of seeing numerous small larvæ apparently feeding upon the *Conferva*. Their numbers gradually decreased, and the sole survivor died a few days since, being then nearly eleven months old, and no doubt nearly full-grown. From it and its case I have drawn up the following description:—

The case is ten millimetres long; two and three-quarters of a mill. broad at its larger end, and one and a-half at the smaller, gradually decreasing from one to the other; the transverse section at either end is perfectly quadrangular, the larger end quite open, the smaller partially closed by a membrane, but having a large circular opening in the centre; the external angles are not sharply indicated. In colour it is a dark obscure olive-green, almost smooth, but shewing, under a lens, very numerous narrow transverse indications of successive additions to its length as the larva increased in size. The nature of the materials of which it is constructed is a little doubtful; but I think it is chiefly made of silk secreted by the larva, mixed with a certain proportion of masticated *Conferva*, the latter causing the olive-green colour. Its consistence is slight, readily yielding under the pressure of the fingers, and as readily resuming its original form when the pressure is removed. The texture of this case is much finer than those I already possessed, found by Mr. Parfitt near Exeter, and infinitely finer than those found by me near Scarborough, these latter differing so greatly as to leave some doubt if they be the work of the same species (cf. Vol. ix, p. 166).

The larva is ten millimetres long, sub-cylindrical, and nearly of equal diameter throughout. Its general colour is a very pale evanescent-green, with a trace of orange on the dorsum of the abdomen. The head forms a regular round oval, and is yellowish, with a few isolated black hairs; on the disc are three fuscous markings, viz., two longitudinal oblique striæ, each enclosing three pale points, and between the base of these striæ a somewhat cordate spot, enclosing an irregular pale space; the

front margin is deep black ; the eyes are large and deep black, scarcely elevated above the surface of the head, and, under a two-thirds of an inch object-glass, shew no trace of disintegration. The labrum is rounded on its edge ; the maxillæ are furnished with three-jointed palpi, which are short and gradually diminishing in thickness from base to apex ; the mandibles I cannot distinguish ; the labium is obtusely conical, and with a deep black annulus at its base. The pronotum is transverse ; its anterior edge straight, with the angles not produced, but furnished with isolated black hairs ; there is a longitudinal median line, and a transverse line broadly concave dividing the pronotum into two unequal transverse portions ; the colour is obscure yellowish with a black line posteriorly. The mesonotum is much broader, straight in front, rounded behind, pale whitish-green, with a yellow dorsal plate divided by three longitudinal lines, so that its posterior edge is trilobate ; the side-pieces on which the legs are placed have a deep black irregular marking ; on the surface are a few long black hairs somewhat arranged in fan-shaped series. The metanotum is narrow and transverse, pale-green, the side-pieces marked as in the mesonotum : the metasternum has a fringe of long black hairs on each side of its anterior edge. The legs are yellow, marked with a black line on each edge : the anterior pair very short, the two other pairs long and equal ; in the anterior pair all the joints are short, the femora being very broad and compressed ; in the other pairs the joints are longer, the trochanters one-third the length of the femora, these latter slightly dilated ; the tibiæ not longer than the trochanters, with an unequal pair of testaceous spurs at the end ; the one-jointed tarsus rather longer than the tibia, spurred at the end, and provided with a single piceous curved claw nearly as long as the tarsus itself. The first abdominal segment has no appreciable humps. The whole abdomen is nearly parallel on the sides, and of a very pale green ; the branchial filaments short and isolated, or at the most, two only are placed together (but they are somewhat indistinct in the dead larva) ; the terminal segment is yellowish, with three tufts of long black hairs, one in the middle, and one on each side on a dilatation which carries the anal claws, these latter being short, brown, each strongly directed back upon its basal support, and with a very small tooth exteriorly placed upon the geniculation.

The foregoing description is made from microscopical examinations. The living larva was plainly discernible within its sub-diaphanous case when in the water, and was almost constantly in rather violent motion of a serpentine nature, but without, of course, changing the position of the case, which was attached by a filament at the smaller end to the plants among which it fed. This motion, no doubt, may be looked upon as connected with its breathing apparatus, and is probably rendered necessary both by the paucity of the external branchial apparatus and by the fact that the larva inhabits slowly flowing, and hence only slightly aerated, water.

This larva bears considerable affinity to that of *Oligoptectrum maculatum*, as described and figured by Pictet.

It appears to me that concerning both this and almost all other *Trichopterous* larvæ, there is a gap in the observations of habits remaining to be filled through more extensive study. It is very evident that, although a larva adds to the length and breadth of its case at the larger end as necessity requires, there must, in many instances, be periods in its life when the case must be wholly modified (perhaps abandoned) ; for even the smaller end of the case of a well-grown larva is infinitely

larger than is required by it when young, and is, besides, often partially closed by a membrane. Perhaps, however, all larvæ can turn themselves in their cases (which certainly does occur with some, and probably with *Brachycentrus*), and by this means can cut off the small useless end; but this can only be done periodically, for it is necessary at the same time to add the partially closing membrane.—R. McLACHLAN, Lewisham: 6th March, 1874.

ROCHESTER ENTOMOLOGICAL SOCIETY.—The first half-yearly meeting of the above Society was held at its rooms on Wednesday, March 4th, to review the progress of the Society since its foundation in September, 1873. The number of members at present is twelve, of whom three are honorary.

The meetings are held every Wednesday evening, at 7 p.m., at 12, Orange Terrace, Star Hill, Rochester.

The entrance fee is 2/-, and subscription 2/6 per annum. Members are earnestly requested.

T. J. Cleave Warne, Secretary, 12, Orange Terrace, Rochester.

[We shall be glad to receive similar information concerning other local Societies in accordance with our request in the January number, *ante*, p. 186.—Eds.]

ENTOMOLOGICAL SOCIETY OF LONDON, 16th February, 1874.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

The following gentlemen were elected members of the Society:—E. A. Fitch, Esq., Down Hall, Rayleigh; A. Dowsett, Esq., of Brighton; and James Wood-Mason, Esq., of Calcutta.

Mr. Jenner-Weir exhibited two samples of wheat from Japan and Australia respectively, very much infested by grain-feeding weevils of the genus *Sitophilus*. The species in the Australian wheat was *S. oryzae*, with its parasite *Læmophloeus ferrugineus*; the Japan wheat produced *S. granarius*, accompanied by *Rhizopertha pusilla*. Mr. Weir, in a few remarks, urged upon the members the necessity of more attentive study of the economic branch of Entomology.

Mr. Higgins exhibited a collection of rare *Cetoniidæ* from the Phillipine Islands, including the types of the species described by Dr. Mohnike, which had lately come into his possession. Also a few rare species of the same family from Queensland, including a fine new species of the genus *Diaphonia* (*D. Digglei*, O. Janson).

Mr. F. Smith exhibited the remarkable example of the ant—*Myrmica lævinodis*—figured and described by him in the Entomologists' Annual for 1874, in which the characters of the male, female, and worker were combined in the one individual. He also communicated notes by Mr. Moggridge, detailing further observations upon the grain-storing ant (*Atta structor*) of Southern Europe. Mr. Moggridge was endeavouring to ascertain by what means the germinating power of seeds was destroyed by the ant. He had found the beetle *Platylabus* very common in the nests, and also examples (which were exhibited) of *Cholovocera attæ*, Kraatz. Remarks on trap-door spiders were included, in which it was stated that the traps were often placed absolutely in the ants' nests, the spiders feeding upon the ants. In connection with this latter subject, the President remarked that, according to trustworthy observation, some species of trap-door spiders in Corfu fed by night, apparently temporarily leaving their nests for that purpose.

A discussion took place on the ravages of the Colorado potato-beetle recently noticed in various newspapers and other journals; this beetle (*Doryphora 10-lineata*)

has for a long time proved very destructive in the United States, gradually extending northwards to Canada, and has been extensively noticed by the various State Entomologists (especially by Mr. Riley, of Missouri) in their official reports.

March 2nd, 1874; the President in the Chair.

Mr. McLachlan exhibited two male examples of an Orthopterous insect belonging to the family *Locustidæ*, given to him by Mr. Daniel Hanbury, by whom they were received some years since from his brother, then residing in Shanghai. It appeared, according to Mr. Hanbury's statement, that these insects are sold in the city of Shanghai confined in small fancy wicker cages, and kept in the houses for the sake of the sound they produce. The species seemed to be undescribed, and apparently pertained to a new genus somewhat allied to *Xiphidium*. It was not contained in the collection of the British Museum, nor was there any apparent clue to its identity among described species. In connection with this exhibition, the President said that in Turkey a species of cricket was kept in paper cages and fed upon lettuce leaves with a similar object.* He also exhibited male and female imago, female sub-imago, fully-developed nymph, and larva of the singular species of *Ephemeridæ*, described and figured in this Magazine for October, 1873, as *Oniscigaster Wakefieldi*, McLach. (♀ imago). These were included in a further collection of New Zealand *Neuroptera* sent from Christchurch, N.Z., by Mr. C. M. Wakefield. The aquatic conditions had the curious horny dilatations of the sides of the abdomen along the whole length of this part of the body, and, in addition, a similar structure (placed vertically) along the middle of the dorsum. He further marked that at a recent meeting of the French Entomological Society, M. Guenée expressed himself somewhat incredulous as to the aquatic habits of the moth noticed by M. Bar (see report of meeting on January 5th, *ante*, p. 216) under the name of *Palustra Laboulbenei*. M. Guenée thought the insect was allied to *Cnethocampa*, and said that its characters, in all its stages, were utterly opposed to the supposition of aquatic habits. He considered further information most desirable.

The Rev. A. E. Eaton made some interesting observations on the entomology of Spitzbergen as observed by him during the summer of last year, illustrated by beautiful photographs of various views in that Arctic locality. Three species of the insects were exhibited:—(1) the ubiquitous *Plutella cruciferarum*, the larvæ of which fed upon a species of *Draba*; (2) a *Phycita* of considerable size allied to *subornatella*; (3) a Trichopterous insect which was probably the *Goniotaenius arcticus* described by Boheman from the same locality.†

Mr. Champion exhibited a beautifully fresh example of *Cassida vittata* recently captured near Chatham.

Mr. Grut read a letter from Mr. Gooch referring to the report submitted to him concerning the damage to coffee-plantations in Natal by a Longicorn beetle (see report of meeting on February 2nd). Mr. Gooch considered that the idea of the plants being in an unhealthy condition before they were attacked by the beetle was probably correct. Some discussion ensued on the vexed question of the habits of wood-feeding beetles in general.

Mr. Roland Trimen communicated descriptions of new species of *Lycanidæ* from South Africa: the insects were exhibited.

Mr. Hewitson communicated a paper on new species of *Lycanidæ*.

Part V of the Transactions for 1873, and Part I for 1874, were on the table.

* In the United States the 'songs of the grasshopper' have been set to music. I once had the 'score' tested, and have no desire to repeat the experiment.—R. McL.

† Mr. Eaton's insect agrees with Boheman's description, but it has no connection with *Goniotaenius*. It is a species of *Apatania*, which the description sufficiently indicates so far as the number of leg-spurs is concerned. Every individual is a female.—R. McL.

NEW SPECIES OF *CICINDELIDÆ*.

BY H. W. BATES, F.L.S., &c.

Although upwards of 800 described species of this elegant family are recorded in the Catalogue of Gemminger and von Harold, we are still far from knowing all the existing forms, as the following descriptions will testify.

MEGACEPHALA EXCELSA, *sp. n.*

Maxime elongata, ♂ *parallelopipeda*, *obscure ænea*, *viridi-tincta*; *labro*, *mandibulis* (*apice nigris*), *palpis*, *pedibusque fulvo-testaceis*, *femoribus apice nigris*; *thorace ab angulis anticis gradatim*, *vix rotundatim*, *angustato*, *postice constricto*; *elytris grosse scabroso-punctatis*, *interstitiis versus basin granulatis*. *Long.* 13 lin. ♂ ♀.

Similar in colour to *M. senegalensis*, but much narrower and more cylindrical in form; the elytra in the male being quite cylindrical and in the female very elongate-oval, with much coarser sculpture and destitute of minute granulations. The thorax differs also in not being distinctly rounded in the middle of the sides; the lateral rim is not indented at the ends of the anterior groove. It agrees with *M. regalis* in the black tips of the inner side of the middle and posterior femora, but differs wholly from that species in general form and in the sculpture of the elytra, which is much less dense, with fewer raised granulae, and becoming fainter towards the apex.

Ribé, near Mombas, East Africa. Taken by the Rev. Mr. Wakefield.

TETRACHA FULIGINOSA, *sp. n.*

Angusta, *elongata*, *fusco-nigra*, *subtus et ad latera vix viridi-æneo tincta*, *suprà sericeo subopaca*; *elytris passim discrete punctatis vix granulatis*, *apice utrinque vittula flava*; *antennis*, *labro*, *mandibulis* (*apice nigris*), *palpis*, *abdominis apice*, *pedibusque flavis*, *femoribus apice fuscis*. *Long.* 6—7 lin. ♂ ♀.

Closely allied to *T. angustata*, Chev., but smaller and blacker, and differing in the sculpture of the elytra, which consists of rather large, mostly distinct punctures, diminishing towards the apex, and having but slight traces of raised granulae. The apical yellow streak is narrower, and tapers anteriorly instead of being broadly rounded. The basal joints of the antennæ are tipped with black. The thorax is narrowed from the anterior angles, with scarcely any rounding, and is constricted at the base. The elytra have the elongate, parallel form of *T. angustata*, *violacea*, &c.

Chontales, Nicaragua; two examples (Thos. Belt, Esq.).

OXYCHEILA GRATIOSA, sp. n.

Minus elongata, nigra, suprà fere opaca; oris partibus, antennis, (articulis 1—4 nigro-maculatis) pedibusque fulvo-testaceis, femoribus apice nigris; elytris ovatis (humeris sub-falcatis productis), apice conjunctim sub-acuminatis, discrete punctulatis, utrinque macula transversa, rotundata, discoidali, testaceo-rufa. Long. 7 lin. ♂.

A much less elongate species than *O. tristis*; the elytra especially being shorter and ovate in form, with prominent (rather falciform) humeral angles. The head is gradually narrowed behind the very prominent eyes; the labrum (♂) is long and narrow, leaving the mandibles uncovered throughout their entire length. The basal margin of the labrum and the tips of the mandibles are black. The thorax is small. The elytra are similar in form and sculpture to those of *O. femoralis*, but they are shorter, more produced and falcate at the shoulders, and more dilated at and a little beyond the middle.

The narrow, yellow labrum immediately distinguishes it from *O. femoralis*.

New Granada; several examples (Senor Villagomez).

CICINDELA IGNEICOLLIS, sp. n.

C. epsilon multo major, elytris dilatatis. Viridi-ænea, vertice thoraceque læte igneo-cupreis; elytris elongato-ovatis, albis, plaga scutellari, sutura et lineolis (postice abbreviatis) utrinque duabus, exteriori bis-interrupta, viridi-cupreis; fronte corporisque lateribus subtus densissime albo-pubescentibus; thorace minus dense albo-pubescenti.

Long. 6½ lin. ♀.

Allied to *C. epsilon*; but the broadly rounded elytra give it a different facies, and the thorax (♀) is nearly cylindrical: the legs also are longer and slenderer. Head with very prominent eyes; moderately concave on the crown; densely strigose, and behind, rugose-punctate; the forehead and base of labrum with a dense patch of laid white hairs. Labrum yellow; moderately rounded in the middle, with three prominent and very sharp teeth. The thorax is narrowed and somewhat constricted at the base; the surface is densely and rather roughly transversely rugose. The scutellum is fiery cupreous, like the thorax and crown. The elytra have rectangular shoulders (clothed with white hairs) and are thence immediately and gradually dilated to a little before the apex, which is singly rounded, without sutural angle (♀). The surface is white, with a scutellar

patch, the sutural and lateral edges and two discoidal lines obscure greenish-cupreous; the lines terminate long before the apex, and the exterior one is twice interrupted.

Nicol Bay, West Australia; two examples (Mr. Du Boulay).

CICINDELA HILARIOLA, *sp. n.*

C. flexuosæ affinis, sed angustior et minus ovata; suprâ sericeo-viridis, læviter cuprescens, thorace suprâ cupreo; elytris lunula humerali (in maculas duas distantes solutâ) fascia mediana, lunula interrupta apicali, et utrinque guttis duabus, albis. Long. 5 lin. ♂.

Clearly distinct from *C. flexuosa*, the elytra being much narrower and more parallel-sided, besides wanting the second spot behind the scutellum. The character of the spots is quite different. Thus there is a round one on the shoulder, another equally round behind (nearer the disc), and three others of the same form—one at the base, one near the middle of the suture, and the third at the upper end of what would have been the apical lunule. None of these spots assume the elongate form of those of *C. flexuosa*; the median fascia is similar in the two species.

Northern Persia (Dr. Millingen).

CICINDELA NEBULOSA, *sp. n.*

Angustula, fusco-ænea, elytris velutino-opacis atro-fusco nebulosis; gutta antica discoidali, altera ante apicem, lineolaque transversa marginali mediana, albis; capite minute strigoso; labro brevi, fusco-testaceo, antice fere recte truncato; thorace cylindrico alutaceo-opaco.

Long. 4 lin. ♂ ♀.

A small species, nearly allied to the *C. Vasseletii* group; having a rather narrow, cylindrical thorax, slightly rounded on the sides and narrowed behind. The colour is light brassy-brown, of a changing silky lustre, and having an ill-defined, bi-lobed, dusky patch in the middle of the elytra, over the suture. The palpi are pale, with the terminal joint only, in both pairs, brassy-green. The under-side of the body and the legs are dark brassy-green, cupreous on the episterna and femora; with the trochanters and base of tibiæ generally pitchy-red. The white marks of the elytra are very minute and variable; there is no humeral spot, and rarely a trace of apical lunule in a triangular speck on the margin, and a small dot in the situation of the anterior end of the lunule. A short transverse streak near the

margin is the only trace of the median fascia, except a speck near the suture in a straight line with it; but there is always a small spot on the anterior part of the disc. The pale parts of the elytra are covered with shallow green punctures. The sides of the breast and abdomen are thinly pubescent, and the palpi and legs have very few hairs. The abdomen is roughly punctulate.

Chontales, Nicaragua; many examples (Thos. Belt, Esq.).

Mr. Osbert Salvin has taken at Obispo, Panamá, a dark variety, with a complete, but fine, angular, median fascia.

CICINDELA CHONTALENSIS, *sp. n.*

C. cyaniventri (Chevr.) *proxime affinis, at angustior et elytris multo minus irroratis, lineola utrinque recta, obliqua, pone medium, alba. Elongata, infrà cyaneo-nigra, vel nigra, nitida; suprà cupreo-nigra opaca; labro albo, medio antice late rotundato; palpis nigro-cyaneis, labialibus articulis 1—2 flavis; thorace cylindrico, lævi, lateribus (ut capite) cupreo vittatis; elytris velutinis, dorso haud conspicue punctulatis, sed punctis paulo profundis viridibus sparsim sub-lineatim conspersis; lineola obliqua utrinque mediana alba.* Long. 5 lin. ♂.

In fresh examples the elytra are dark cupreous, opaque and velvety, except on the sides where fine scattered punctures are visible. The oblique white line is sometimes reduced to one or two linear specks; it is well developed, however, in three out of five of my specimens, all males; in one there are the rudiments of an apical lunule.

Chontales, Nicaragua (Thos. Belt, Esq.).

The allied Mexican *C. papillosa* is found also at Chontales, besides *C. Mexicana*, Klug, *C. carthagenæ*, Dej., *C. calochroïdes*, Motsch., *C. hydrophoba*, Chevr., and *C. obliquans*, Chaud.

CICINDELA WALLACEI, Chaudoir, Cat. Cicind., p. 27.

C. niveicinctæ (Chevr.) *proxime affinis, at magis elongata, obscure viridi-cuprea, elytris (♀) apice ad suturam vix conjunctim emarginatis, sutura breviter spinosa, margine albo laterali ante et post medium late interrupto.* Long. $5\frac{3}{4}$ lin. ♀.

A species named (but not described) in the catalogue of the Baron de Chaudoir. The elytra, as in *C. niveicincta*, have on each a rounded mirror-like spot on the anterior part of the disc.

Celebes (Wallace).

CICINDELA GRANULIPENNIS, *sp. n.*

C. morioni (Klug) *formâ similis*. *Nigra, suprâ opaca, elytris marginibus anguste cupreis sub-nitidis, minute granulatis, lunula humerali et apicali, fasciâque valde flexuosa mediana, albis; capite post oculos vix angustato; labro (♀) medio convexo, antice producto fortiter tridentato, angulis rectis, albo; thorace capite paulo angustiori, subtiliter rugoso, marginibus albo-tomentosis.* *Long. 4½ lin. ♀.*

Allied to *C. morio* and *acompsa*, but anterior angles of the labrum nearly rectangular and elytra finely granulated. The palpi have the terminal joints only brassy-black. The head is very finely sculptured, with distinct striæ only on and near the orbits; it is not much narrowed behind the eyes, and not much broader than the cylindrical thorax. The white markings of the elytra are indistinct, except the apical lunule, which forms a conspicuous white apical border, of equal width from the suture to the curve at the exterior angle. The under-side of the body is densely clothed with white pubescence. The trochanters are red.

Macas, Equador; two examples (Mr. Buckley).

CICINDELA CATHAICA, *sp. n.*

C. gracili (Pallas) *affinis*. *Gracilis, viridescenti-nigra; suprâ sericeo-opaca; elytris macula magna discoidali pone medium alteraque exteriori-apicali testaceo-albis.* *Long. 4½ lin. ♂.*

Similar in form to the Siberian *C. gracilis*, but the shoulders of the elytra more rectangular. The surface of the elytra is similar in texture, and the white spot forming the anterior part of the apical lunule is of the same form; but there is no dilated marginal spot at the median fascia, and on the other hand there is a large spot on the disc at the termination of the fascia. The cylindrical thorax is short and narrow. The labrum (♂) is notched in the middle of its front edge, with a tooth in the middle of the notch.

Hong Kong.

This is possibly the undescribed *C. mandarina* of Chaudoir's catalogue.

CICINDELA DELICATA, *sp. n.*

C. placidæ (Schaum) *proxime affinis; differt capite grossissime striato, vertice et thorace rugoso-punctatis; cærulea, suprâ opaca; labro magno, cæruleo, apice testaceo-flavo, medio unidentato; elytris dimidio basali granulato-punctatis, macula marginali post humerum, linea mediana recta cum lincolâ marginali conjuncta, margineque apicali tenui, albis.*

Long. 4 lin. ♀.

Form of body as in *C. placida*, but with more slender legs, clearer reddish-testaceous, and elytra not clouded with dark blue. The chief distinction, however, resides in the sculpture of the thorax and crown of the head, which are smooth in *C. placida*, and roughened, with rather coarse, irregular rugæ in *C. delicata*; the striæ of the sides of the head are also much broader and coarser. The white marks on the elytra are slender, and in the same situation as in *C. placida*; but the median fascia is not flexuous but straight and oblique, and is joined to a white marginal line. The apical lunule is interrupted; there being an isolated speck in the situation of the anterior end, and a narrow, white, apical margin. The humeral angle is reddish. It differs from the allied *C. pupillata* in the broader and more rounded thorax and in colour.

New Guinea (Wallace).

CICINDELA IMMANIS, *sp. n.*

Ad sectionem C. biramosæ pertinet. Elongata, convexa, cupreo-nigra, oris partibus nigro-æneis, mandibulis basi igneis; labro antice paulo producto ♂ et ♀ unidentato; thorace rotundato, pronoti sutura laterali dorsum versus sita; elytris oblongis, apice obtuse conjunctim rotundatis, suprâ lævibus, alutaceis, punctis perpaucis versus basin; pedibus elongatis, unguibus longissimis. Long. 4—6 lin. ♂ ♀.

A strange looking species, having the heavy build of the African *Megacephalæ*; it is, however, nearly allied to *C. biramosa*, but more convex and with the lateral suture of the pronotum moved still further towards the disc, leaving exposed the very convex flanks of the prothorax. The head is nearly of the same shape, scarcely depressed between the eyes; it is finely sculptured, and has very few longitudinal striæ. The labrum, like the palpi, is black, transverse quadrate in form, with broadly dentate anterior margin. The thorax is very finely sculptured, and hairless. The elytra are obtusely rounded at the apex; the sutural angle not prominent; the surface uniformly alutaceous, but with scattered fine punctures near the base, and a row of concolorous larger punctures parallel to the suture. The body is nearly glabrous underneath.

In the ♀ the antepenultimate ventral segment is advanced in a large lobe in the middle, nearly covering the penultimate.

The antennæ are short, filiform, the terminal joints being much abbreviated.

Yemen; many examples.

PRONYSSA, *gen. nov.*

♂ *pedum quatuor anticorum tarsi articulis tribus dilatatis. Labrum maxime elongatum, dentis quinque validis instructum.*

This genus is founded on an Indian species having the remarkable character in the ♂ of dilated tarsi to the four anterior legs. In this respect it agrees with *Heptadonta*, having the dilated joints of the same form and same dense hairy vestiture beneath. But the labrum differs in being extremely elongated (as long as in *Oxycheila*) even in the ♂, with only five very strong, almost claw-like, teeth. The thorax differs also in being very small, strongly constricted in front and behind, with much rounded central portions. The elytra are covered with strong vermiculate rugæ. The general form of body is that of the S. American *Odontocheilæ*, or rather the *Pentacomia*. The tarsi are not grooved.

PRONYSSA NODICOLLIS, *sp. n.*

Elongata, gracilis, supra herbaceo-viridis, subaureo-micans, passim rugulosa; subtus viridi-æneo splendens, lateribus igneo-æneis, nudis; labro flavo-testaceo, vitta mediana viridi; pedibus testaceo-fulvis, elytris utrinque guttis marginalibus tribus albis. Long. 6¼ lin. ♂.

The head is deeply concave between the eyes, and finely striated over its whole upper surface. The labrum quite covers the mandibles except their apices; the palpi are pale testaceous, with the terminal joints only a little darker. The thorax is closely and irregularly wrinkled, chiefly in a transverse direction. The white spots of the elytra are situated—one at the humeral angle, a second in the middle of the side, and the third at the external apical angle; none of them touch the margin. The body beneath is destitute of pubescence, but the coxæ have a patch of white hairs.

Darjeeling.

ODONTOCHEILA SALVINI, *sp. n.*

Gracilis, cylindrica, supra elytris æqualibus, creberrime grossius punctatis, haud rugulosis, cupreis, marginibus cyaneis guttis tribus parvis albis; subtus pedibusque cyaneis, femoribus basi piceo-rufis, trochanteribus posticis nigris. Long. 5½ lin. ♂ ♀.

Similar in form to *O. margineguttata*, but a little more elongate, the cylindrical thorax without constriction, and the elytra evenly convex without depressions. The labrum is rather elongate (especially in

the ♀) and 7-toothed, blue, with reddish borders. The basal joints of the antennæ are blue. The head is more roughly sculptured than in *O. margineguttata*, and the striæ visible in the centre. The transverse striæ of the thorax are very distinct; the hind border is igneous-coppery; the disc on each side purplish and duller. The elytra are coppery, changing with the play of light, with the margins bluish; the lateral spots are very small, especially the humeral and apical, the latter sometimes wanting. The surface is densely covered with larger punctures than usual, not running into rugæ. The whole under surface is glossy dark blue and glabrous. The legs are also dark blue, except the reddish extreme bases of the femora. The two terminal joints of the maxillary palpi and the terminal one of the labials are black, but in some examples the under-side of the penultimate joint of the labial palpi is also black.

Obispo, Isthmus of Panama. Several specimens taken by Mr. Osbert Salvin.

ODONTOCHEILA RUFISCAPIS, sp. n.

Gracilis, valde elongata, suprâ obscure cuprea, antennarum articulo primo rufo-testaceo; elytris angustis, suprâ æqualibus, creberrime grossius punctatis, margine cyaneo; guttis tribus albis; subtus nigro-cyanea, pedibus cærulescenti-piceis, femoribus basi flavo-testaceis.

Long. 5 $\frac{3}{4}$ lin. ♂ ♀.

The head and thorax are shorter in proportion to the elytra than in any of the allied species, and the elytra are destitute of the depressions which exist in *O. margineguttata*. The scape of the antennæ is pale reddish-testaceous, and the joints 2—4 are pitchy-black, with a slight bluish tint. The labrum is dull green, with reddish borders. In colour the species agree with *marginilabris*, Erichs., but, according to the description, that species has an oblique depression on the elytra, and transverse 5-toothed labrum; it is therefore a *Phyllodroma*. *O. rufiscapis* has an elongate 7-toothed labrum in both sexes. The thorax is short and cylindrical; dull in colour, with a coppery stripe on each side, and no coppery lustre on the hind margins. The elytra are dullish brown-coppery, with violet margins edged with golden-green; the marginal white spots small, especially the humeral one; their surface is covered with punctures, so close that their interstices rise as minute sharp tubercles; but there are no transverse rugæ.

Macas, Equador; several examples (Mr. Buckley).

ODONTOCHEILA NICARAGUENSIS, *sp. n.*

O. Cayennensi formâ similis, at pedibus posticis multo gracilioribus, abdomineque (ut corpus subtus totum) nigro-cyaneo. Suprà obscure cuprea; labro et palpis nigris, illo macula laterali rufescenti; antennis basi cyaneo-nigris; pedibus saturate viridi-æneis, femoribus piceo-violaceis, trochanteribus posticis nigro-æneis; thorace cylindrico, angustiori, sub-grosse transversim strigoso, cuprescenti; elytris sub-grosse creberrime punctatis, obscure cupreis, lateribus cyaneis et auratis lævioribus, gutta alba mediana solùm distincta.

Long. 7½ lin. ♀.

In size and general form, as also in the evenly convex, coarsely punctured elytra, resembles the *O. Cayennensis* group; from which it differs in the slender posterior legs (especially tibiæ), the black abdomen, and wholly metallic legs.

Chontales, Nicaragua; one example (Mr. Thos. Belt).

THERATES ERINNYIS, *sp. n.*

T. Batesii (Thoms.) *simillimus; at multo major, elytrisque apice sinuato-truncatis, suturâ longe productâ. Suprà capite thoraceque æneis politis, elytris castaneo-rufis plaga magna mediana nigra, tubere transverso pallido includenti, apiceque pallide-testaceo; labro (♀) antice lato, octo-dentato.*

Long. 5 lin. ♀.

The labrum (♀) differs from that of *T. Batesii* in being broader on the fore margin and having eight teeth, *T. Batesii* having only seven teeth. The teeth differ somewhat in form, the exterior one on each side of the front row of six being longer and sharper than the intermediate four; whereas in *T. Batesii* the five anterior teeth are quite uniform. The large marginal tooth is also more acute and more separated from the body of the labrum. The elytra have the same configuration of surface, large tubercular elevations at the base, followed by a depression, and then by a transverse, rather oblique, pale swelling; but the apex is entirely different, being sharply sinuate-truncate (emarginate) on each side, with the suture prolonged into a long, strong tooth. The legs are testaceous-tawny, the abdomen a little darker, the whole under-side of head and thorax black. The head and thorax are glossy æneous, not cyaneous.

Northern Borneo; three examples; ♀.

Bartholomew Road, Kentish Town, N.W.:

March, 1874.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

[*Revision of the Family DELPHACIDÆ.*]

(continued from Vol. ix, p. 238.)

Species.—*LIBURNIA PERSPICILLATA*, Boh.

Delphax perspicillata, Boh., Öfvers., ii, 164, 31 (1854); Handl., 62, 32 (1845); Stål, Öfvers., xi, 191, 7 (1845); Kirschb., Cicad., 31, 26 (1868).

Kelisia perspicillata, Fieb., Verh. z.—b. Wien., 532, 6 (1866).

Developed form, ♀.

Yellow. Cheeks with a large black spot. *Elytra*, pale, almost transparent, as long as the abdomen.

Head yellow, somewhat longer than broad, rounded in front. *Crown*—keels not prominent; frons somewhat brownish. *Face*: cheeks with a large black spot. *Antenna* yellow, granulation black. *Eyes* black or purplish-brown.

Thorax: *pronotum* and *scutellum* yellow, keels not prominent. *Elytra* as long as the abdomen, pale, almost transparent; outer edge of the anterior marginal nerve in certain lights very narrowly blackish; nerves distinct, not granulated. *Sternum* yellow, with a round black spot just above the base of the 1st pair of legs. *Legs* yellow. *Tarsi*—extreme apex of all the pairs and *claws* black.

Abdomen above blackish, more or less broadly fuscous-yellow down the middle; beneath yellow; ovipositor black. Length, 1 line.

Smaller than *L. guttula*, next to which species it will stand in our lists. The entirely yellow pronotum and scutellum, and absence of the black streak in the elytra, will be found sufficient to separate it from the last named.

I have only seen a single ♀ example taken by Mr. Hardy on the Cheviots in October, and I have compared it with an original ♀ type of Boheman's, given to me some years ago by my friend, Dr. Stål, and with which it agrees in every respect.

37, Manor Park, Lee, S.E.: December, 1873.

HEMIPTERA-HETEROPTERA: DESCRIPTION OF TWO NEW SPECIES OF THE FAMILY *EMESIDÆ*.

BY JOHN SCOTT.

Section REDUVIINA.

Family *EMESIDÆ*.Genus *EMESA*, Fab.*EMESA CORSICENSIS*, *sp. n.*

Pale ochreous or yellowish. Apterous. 3rd and 4th joints of

the antennæ, sides of the head and sternum and outside of the coxæ, and thighs of the anterior legs, black; basal half of the head and the entire thorax with a fine, red, central line.

Head pale ochreous or yellowish, very finely and sparingly granulated; basal half with a fine, red, central line; sides with a broad black streak, interrupted by the eyes. *Antennæ* brownish-yellow, antenniferous processes fuscous or black; 1st joint—before the whitish apex a narrow fuscous or black ring; 2nd, at the base, narrowly, apex more broadly, and 3rd and 4th black. *Eyes* fuscous, glassy. *Rostrum* pale, inside dark brown, apical joint brown.

Thorax pale ochreous or yellowish, with a fine, red, central line throughout its entire length; anterior angles and lateral margins black, very finely granulated. *Sternum*, on the sides, black. *Legs* testaceous or yellowish: *Coxæ*—1st pair, on the outside apical half, black; 2nd and 3rd pairs black, above brown. *Thighs*—1st pair, on the outside, broadly but irregularly black; upper margin with three oblong, piceous, or black spots, underneath, next the apex, with a transverse black half ring; 2nd and 3rd, at the base, narrowly fuscous-black, apex with a broad fuscous ring, and another of the same colour about its own width from the latter. *Tibiæ*—1st pair, from the base to a little before the middle, on the outside, with a black streak enlarged into a spot at its termination, apex black; 2nd and 3rd pairs, at the base, a broad ring near to the latter, and apex fuscous. *Tarsi*—1st pair pale; upper margin, in the middle, with a short brownish streak; 2nd and 3rd fuscous or black.

Abdomen above, sordid brownish-yellow, with a fine red line down the centre, and another on either side; last segment above, somewhat duckbill-shaped; beneath fuscous-black. *Connexivum* fuscous-black. Length, $7\frac{1}{2}$ lines.

This insect forms a fine addition to our European fauna; as, hitherto, the genus has been without a representative. The known species are of limited number, but have a wide range of distribution. I expect they are of retired habits, living for the most part on the ground, and thus escaping capture, as a rule, by the sweeping net.

Four specimens were taken by the Rev. T. A. Marshall in July, near Sartène, in Corsica, "amongst rank grass, aniseed, *Absinthium*, "&c., dried up by the sun."

Genus EMESODEMA, Spinola.

EMESODEMA HUTTONI, *sp. n.*

Fuscous. Apterous. *Pronotum*—anterior margin slightly wider than the head, and with a narrow collar. *Legs*: *fulera*—1st pair armed with a long spine. *Thighs*—1st pair with two dense rows of short spines on the under-side, amongst which, at irregular intervals, are some five long ones.

Head fuscous; basal half with a narrow, whitish, central line, and a more or less defined spot of the same colour adjoining the inner margin of each eye. *Antennæ* dark brown. *Rostrum* dirty yellowish-white, 2nd joint dark brown.

Thorax : pronotum fuscous ; the collar, and a more or less wide, longitudinal, central line, whitish ; meso- and metanotum fuscous, central and side keels whitish. *Elytra* and wings none. *Sternum* pale fuscous-grey ; meso- and metasternum, on the sides, fuscous. *Legs*—*coxae* of all the pairs pale fuscous-grey. *Fulcræ*—1st pair armed with a long spine. *Thighs*—1st pair pale fuscous-grey, with two dense rows of short spines on the under-side, amongst which, at irregular intervals, are some five long ones ; apex, and a band near to it, fuscous, the intermediate space whitish ; upper margin dark fuscous-grey from the base to the band ; 2nd and 3rd brownish, darkest at the apex, extreme apex of the latter whitish. *Tibiae*—1st pair pale fuscous-grey, base exteriorly and apex darker ; 2nd and 3rd brownish, becoming paler towards the apex. *Tarsi* and *claws* pale brownish-testaceous.

Abdomen above, dark fuscous, with a central line and an ill-defined patch on the posterior portion of each segment paler ; last segment darkest, and with the patches most distinct. *Connexivum* above, fuscous, next the anterior margin of each segment whitish. Length, $2\frac{3}{4}$ lines.

Considerably smaller than *E. domestica*, and differs from that insect in the shape of the pronotum, as well as having long spines intermixed with the shorter ones on the under-side of the anterior thighs, characters which may induce others to create a new genus for its reception.

I have two specimens sent to me by my friend, the Rev. O. P. Cambridge, who received them from Auckland, New Zealand, where they were taken by Capt. F. W. Hutton, after whom I have the pleasure of naming it.

Manor Park, Lee, S.E. :

March, 1874.

DESCRIPTION OF A GENUS AND SPECIES OF *HEMIPTERA*- *HETEROPTERA* NEW TO EUROPE.

BY JOHN SCOTT.

Family *CAPSIDÆ*.

Genus *PLAGIOTYLUS*, Fieb. (M. S.).

Somewhat elongate.

Head : crown short, flat, considerably deflected, and sunk below the level of the upper margin of the eyes. *Face* convex, perpendicular, anterior margin a little in front of the eyes. *Antennæ*—1st joint clavate, half its length reaching before the face ; 2nd two and a half times as long as the 1st ; 3rd and 4th wanting.

Eyes spherical, prominent, projecting a little way beyond the anterior margin of the pronotum. *Rostrum* stout, reaching to about the second pair of coxæ.

Thorax : *pronotum* short, trapeziform, more than one and a half times broader on the posterior margin than long; anterior margin slightly concave; posterior margin almost straight across the scutellum, from thence to the hinder angles gently rounded. *Scutellum* triangular, equilateral, with a transverse channel near the base. *Elytra* longer than the abdomen. *Legs* moderately long and stout.

Somewhat allied to the genus *Pachylops*, Fieber; from which the flat, low crown of *Plagiotylus*, and the shape of the face, when viewed from the side, will be found sufficient to separate it.

PLAGIOTYLUS MACULATUS, sp. n. (Fieber, M. S.).

Dull green, clothed with longish semi-erect black hairs; posterior thighs sparingly punctured on the inside, next the apex. *Membrane* with numerous, small, fuscous-black spots.

Head : *crown* and *face* sparingly clothed with long, almost erect, stout black hairs.

Antennæ greenish or greenish-yellow, clothed with black hairs; 1st joint green, with a few minute black punctures, in which some of the hairs are inserted; 2nd greenish-yellow, apex narrowly black; 3rd and 4th wanting. *Eyes* brown, *Rostrum* pale green, apex black.

Thorax : *pronotum* dull green, sparingly clothed with long, black hairs, similar to those on the head; next the anterior margin, and at a short distance from the centre, are two flat callosities, encircled by a narrow channel, and joined by a fine central one, thus having somewhat the appearance of a pair of spectacles; disc posteriorly finely crenulate. *Scutellum* slightly convex, clothed with black hairs. *Elytra* dull green. *Clavus* and *corium* somewhat thickly clothed with short, semi-depressed, black hairs. *Membrane* pale fuscous-yellow; *cells* yellowish, the entire disc and cell nerves covered with small, fuscous-black spots of irregular size, and placed at irregular intervals. *Legs* dull green or greenish-yellow; *thighs* clothed with short, black hairs. *Tibiæ*, on the outside, armed with a few longish, spinose, black hairs, each of which is placed in a minute, black puncture; apex brown. *Tarsi* brown. Length, 2½ lines.

Although this insect, to the best of my belief, has never been described by the late Dr. Fieber, to whom I sent it for identification, yet I retain the names he gave it, and by which it would have been known had he lived. There is only a single example, in very bad condition, taken by my friend, the Rev. T. A. Marshall, at Torla, some years ago.

. Manor Park, Lee, S.E. :

March, 1874.

DESCRIPTION OF TWO NEW WEST AFRICAN BUTTERFLIES
FROM THE COLLECTION OF HENLEY G. SMITH.

BY W. C. HEWITSON, F.L.S.

HARMA HARMILLA.

Upper-side : ♀. Dark brown. Both wings crossed by a zig-zag sub-marginal band of black, bordered below with white. Anterior wing crossed within the cell by four zig-zag black lines ; crossed at the middle by a narrow band of dark brown, surmounted by five pyramidal white spots ; the zig-zag sub-marginal band bordered above with white, surmounted by a series of dark brown hastate spots. Posterior wing crossed at the middle by a white band.

Under-side : both wings crossed at the middle by a common linear, nearly straight, band of black, surmounted on the anterior wing by five white pyramidal spots ; both wings with the basal half pale brown ; the cell of the anterior wing crossed as above by black lines, the cell of the posterior wing marked by an 8-like spot ; crossed below this by a curved line of black ; both wings with the outer half white, crossed by a series of pale brown pyramidal spots, and near the outer margin by a pale brown linear band forming pyramidal spots, the apex of each spot marked by a black linear spot.

Exp. $3\frac{2}{10}$ inch.

Hab. : West Africa (Cameroons).

HARMA HELIADA.

Upper-side : ♂. Orange-yellow. Both wings with the outer margin rufous ; both with a sub-marginal continuous series of lunular black spots. Anterior wing with the base rufous, two zig-zag black lines in the cell, and a brown spot at the apex. Posterior wing dark brown from the base to beyond the middle ; the cell, which is paler, marked by an 8-like spot ; the costal margin pale yellow, with three spots of yellow near its middle.

Under-side : rufous-yellow, clouded with red-brown. Both wings crossed at the middle by a common, nearly straight, red-brown, narrow band, surmounted on both wings by pyramidal spots continuous on the anterior wing, at the apex only of the posterior wing ; both wings crossed beyond the middle by a double series of pyramidal rufous spots. Anterior wing with a small black spot, and a red-brown spot (with a smaller spot below it) in the cell. Posterior wing with an 8-like spot in the cell, and a smaller spot below it.

Exp. $2\frac{6}{10}$ inch.

Hab. : Cameroons.

Oatlands, Weybridge :

April, 1874.

Description of the larva of Apamea gemina.—On the 28th of March, 1868, my friend Mr. Doubleday kindly sent me a larva about an inch long, found at night in Epping Forest, which, unfortunately, soon after died from ichneumons, and the figure taken of it remained an enigma until 1872, when its identity was determined by the appearance of *gemina* from a similar larva, found by the Rev. H. Williams, of Croxton, while searching for larvæ of its congener *unanimis* under grass sods in a loose and damp soil on December 12th, 1871; although so much smaller than the one above mentioned, being only three-eighths of an inch long at that date, yet I saw at once it was of the same species, possessing the same distinguishing characters, which continued unchanged till its maturity.

Though supplied with plenty of grasses from time to time, it persistently kept itself coiled round, and nestled amongst the soil at the roots, showing no disposition to feed until the 27th of February, 1872, when it came out and moulted on the grass, and then began to feed on *Phalaris arundinacea*; having soon after increased in length to seven-eighths of an inch, it again moulted; and by March 18th reached its full growth, when I found it would eat *Poa annua* or *Triticum repens* quite as well as the ribbon grass, but it was not a great eater: on the 24th it retired to earth, and the moth, a female, emerged on June 12th, a dark and handsome variety, the *remissa* of Haworth.

This larva, when full-grown, was one and five-eighths of an inch in length, cylindrical, of moderate and almost uniform stoutness, tapering but little at either end, the head rounded. In colour it was a brownish-grey, finely striated longitudinally with a darker tint of the same; the dorsal line yellowish-white, uniform in width throughout, and bordered with dark grey; the sub-dorsal stripe brownish-ochreous, but little paler than the colour of the back; the spiracular stripe, characteristic of the genus and of this species in particular, was *broad*, of a light drab colour with paler edges, and along its middle were situated the oval spiracles which were yellowish-drab delicately outlined with black; the belly and all the legs brownish-grey similar to that of the back; the shining head of the same colour freckled with darker, the black plate on the second segment highly polished as well as on the anal flap, and on both the dorsal and sub-dorsal lines appeared almost white, the tubercular warty dots blackish, each bearing a grey-brown hair.

The pupa was little more than five-eighths of an inch in length, of the usual *Noctua* shape, rather stout in proportion to its length, ending in two minute points at the anal tip; it was of a dark mahogany-brown colour, and very glossy, enclosed in a very brittle earthen cocoon one inch long by five-eighths wide, lined with a slightly wrought tracery of silk threads.—WM. BUCKLER, Emsworth: March 9th, 1874.

Description of the larva of Nonagria neurica.—On the 30th of June, 1870, several larvæ of this species were forwarded to me by the Hon. Thomas de Grey, who very kindly sent me some of a number he had taken in the Norfolk fens, that I might not only figure the larva and pupa, but also breed the imago; unfortunately, however, whilst he had the good luck to breed four imagos on July 27th, all my larvæ were infested with dipterous parasites, so that I did not see the pupa, nor have I since been able to obtain more examples.

The larvæ were inhabiting pieces of the stems of *Arundo phragmites*, which had evidently been cut from the upper portions of the reeds, as they were perfectly fresh

and green, varying in diameter from a quarter to three-eighths of an inch, and about fourteen to sixteen inches in length, and more or less sheathed with green leaves; the sign of a stem being tenanted with this larva was a small circular hole about a line in diameter, situated about five inches above the joint of the sheathing leaf; the stems which I cut open for the purpose of examining the larva, had, I found, been mined to the extent of at least twelve inches.

The full-grown larva of *neurica* is one and a-half inches in length, remarkably slender, cylindrical, and of uniform size, excepting that the two first and the two last segments taper a little; the lobes of the head well defined on the crown; the anal extremity a little flattened above, and rounded in outline; all the legs well developed, the anal pair extending beyond the anal tip and slightly divergent, so that the hinder segments are brought close to the surface on which it may happen to be; by contrast the ventral legs appear rather long; the segmental divisions and sub-divisions not very strongly defined; the skin soft, smooth, of a waxy texture, flesh coloured, sometimes inclining to pinkish above with paler flesh colour below; the head reddish-brown, and very shining, mouth dusky-brown; a shining plate on the front of the second segment of similar flesh colour to the rest of the body, another polished plate on the anal flap of greyish-brown, and sometimes margined behind with darker brown: the dorsal pulsating vessel can just be seen a little paler than the other parts of the back, with a darker patch or two in its course sometimes visible; a delicate thread-like paler line appears along the spiracles, which are small, of deeper flesh colour, finely edged with black; the tubercular dots are small, of a darker flesh colour or brownish, and polished in texture, each with a very fine hair; the anterior legs of the same colour as the body, the ventral and anal legs rather more transparent and shining, tipped with rather darker hooks.—ID., Emsworth: December 31st, 1873.

Sericoris irriguana and *Daleana*.—A series (including both sexes) of *S. irriguana* has been lately sent to me in the hopes that I should consider it distinct from *S. Daleana*. How any one can doubt its distinctness I cannot imagine. As for *S. Daleana* I have taken considerable numbers, and never saw any specimens with any similarity to *S. irriguana*; besides, the habits are totally different, and I am informed that the last-named species occurs on grassy slopes at a considerable altitude, whereas *S. Daleana* is most plentiful amongst bilberry, &c., in the fir wood close to the saw mill at Rannoch.—J. B. HODGKINSON, 15, Spring Bank, Preston: March 14th, 1874.

Notes on Lepidoptera from South Wales.—March 27th, took *Brephos parthenias* for the first time, though I think I once saw it on the wing. Good Friday (April 3rd) was an awful day with wild storms of hail, and thunder and lightning at night. Curiously enough, it seems to have wakened up the moths, for a fine specimen of *Macroglossa stellatarum*, after wildly flying round my house for some time, went into the dining room through the open window, and was captured. Later in the day my gardener (R. Stafford) took a fine specimen of *Xylina conformis* at rest upon a birch-trunk; the Glamorganshire locality from which the first British examples were recorded in the Entomologist's Annual for 1862 (p. 108) is 30 miles

from here, and this is the first living specimen I have seen. The species is autumnal, and, though this individual has probably hibernated, it is in very good condition.—J. T. D. LLEWELYN, Ynisgygerwn, Neath: April 5th, 1874.

Taniocampa gothica, var. *gothicina*, in Yorkshire.—A variety of *Taniocampa gothica*, which seems to me identical with Mr. George Norman's *gothicina*, occurs not unfrequently in this district, along with ordinary specimens. I have also had the form out in one of my breeding cages this spring.—GEO. T. PORRITT, Huddersfield: April 14th, 1874.

Eupithecia dodoneata two years in the pupa-state.—In 1872, I reared from the egg several larvæ of *Eupithecia dodoneata*, *consignata*, *irriguata*, and *abbreviata*. In the spring of 1873, the last three named species emerged, but not one specimen of *dodoneata*. This caused surprise at the time, but scarcely so much as its appearance this spring. After remaining in pupa two winters, I have reared about twenty very fine specimens.

Can any of your readers kindly inform me if it is of frequent occurrence for any species to remain so long in the pupal state?

I have myself reared many species, and cannot recall a single instance.—E. S. HUTCHINSON, Grantsfield: April, 1874.

Note on Ceraleptus lividus, Stein.—In the year 1863, Dr. Power captured at Deal a single specimen of a *Ceraleptus*, and this having been sent to Dr. Fieber was returned as *C. squalidus*, Costa, = *C. lividus*, Stein, and it was so given in the 'British Hemiptera.' Early in last year, I, for the first time, saw Costa's description and figure of his *C. squalidus*: the former says nothing about the thickness of the antennæ, but in the latter they are represented slender throughout; I then doubted if our species, which have the 3rd joints thicker than the 2nd, were the same as Costa's. Afterwards, in the 'Punaises de France,' I saw that Mulsant and Rey did not adopt Fieber's idea of *C. squalidus*; but, to be certain, I sent a British example to Dr. Stein, who has had the kindness to say, in reply to my enquiry,—“The Hemipteron is *Ceraleptus lividus*, ♂. The antenniferous processes, it is true, are only slightly developed, but this matters not, for the main points are the form of the 3rd joint of the antennæ and the colour of the last segment of the abdomen. In *C. squalidus*, Costa (which, by the way, I know only from the S. of Europe), the 3rd joint of the antennæ is cylindrical and thin like the 2nd, and in this respect is exactly like *C. gracilicornis*, H.-Sch. The apex of the abdomen is always black, in *C. lividus* reddish-yellow, like the preceding segments.” The synonymy therefore will be—

Ceraleptus lividus, Stein, Berl. ent. Zeits. ii, 75, 3 (1858); Mulsant and Rey, Punaises de France, iii, 64, i (1870).

„ *squalidus*, Fieb., Eur. Hem., 219, 1 (1861); Dougl. and Scott, Brit. Hem. 127, 1, pl. v, fig. 1 (1865); nec Costa.

Coreus difficilis, Vollenh., Tijds. v. Entomol. 2 ser. iv, 56, 2, pl. 1, fig. 5 (1869).

In the Ent. Mo. Mag., Vol. viii, p. 62, I wrote that *Amblytulus affinis*, Fieb., D. and S., was only a variety of *Macrocoleus solitarius*, Mey. The former name was a lapsus calami for *Oncotylus pilosus*, D. and S.—J. W. DOUGLAS, Lee: April, 1874.

Additions of three species to the British list of Tenthredinidæ.—*Strongylogaster mixtus*, Klug. For two males of this species I am indebted to my friend, Mr. John Dunsmore, who captured them near Paisley.

Pœcilosoma obtusum. I have taken at Rannoch the species described by Thomson (Hymen. Scand. i, 231) under this name, and he (*l. c.*) expresses a doubt as to whether the Swedish form is the same as the insect described by Klug as *obtusum*, and there is certainly some discrepancy between the descriptions. The northern form has the feet nearly all luteous; the abdomen at the sides irregularly marked with white, and the anus sordid luteous. The anterior wings have only three sub-marginal cells, which circumstance is often the case with *P. impressum*. It is smaller than *P. pulveratum*, whilst Klug's *obtusum* is larger than the latter.

Hoplocampa pectoralis, Thoms. (Hymen. Scand. i, 202). I have seen an individual of this species, which was taken by the Rev. T. A. Marshall at St. Albans.

I may also state that I have taken in the vicinity of Glasgow *Nematus Kirbyi*, Dbm., and *Dolerus gibbosus*, Hart., neither of which has been recorded as British under these names; and I cannot make out, from the unsatisfactory descriptions in the "Illustrations," if they were known to Stephens.

Nematus cinereæ, Retz., Thoms., must be added to the list of gall-making sawflies. I have bred it from hairy pea-shaped galls on *Salix cinerea*.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: 6th April, 1874.

LINNEAN SOCIETY, March 19th, 1874.—Dr. ALLMAN, F.R.S., in the Chair.

Sir John Lubbock, Bart., M.P., F.R.S., read a paper entitled "Observations on Bees and Wasps," of which the following is an official abstract:—

The paper commenced by pointing out, with reference to the power of communication with one another said to be possessed by Hymenoptera, that the observations on record scarcely justify the conclusions which have been drawn from them. In support of the opinion that ants, bees, and wasps possess a true language, it is usually stated that if one bee discovers a store of honey, the others are soon aware of the fact. This, however, does not necessarily imply the possession of any power of describing localities, or any thing which could correctly be called a language. If the bees or wasps merely follow their fortunate companions, the matter is simple enough. If, on the contrary, the others are sent, the case will be very different. In order to test this, Sir John kept honey in a given place for some time, in order to satisfy himself that it would not readily be found by the bees, and then brought a bee to the honey, marking it so that he could ascertain whether it brought others or sent them, the latter, of course, implying a much higher order of intelligence and power of communication. After trying the experiment several times with single bees and obtaining only negative results, Sir John Lubbock procured one of Marriott's observatory-hives, which he placed in his sitting-room. The bees had free access to the open air; but there was also a small side or postern door, which could be opened at pleasure, and which led into the room. This enabled him to feed and mark any particular bees; and he recounted a number of experiments, from which it appeared that comparatively few bees found their own way through the postern, while of those which did so the great majority flew to the window, and scarcely any found the

honey for themselves. Those, on the contrary, which were taken to the honey, passed backwards and forwards between it and the hive, making on an average, five journeys in the hour.

Sir John had also in a similar manner watched a number of marked wasps, with very similar results.

These and other observations of the same tendency appear to show that, even if bees and wasps have the power of informing one another when they discover a store of good food, at any rate they do not habitually do so; and this seemed to him a strong reason for concluding that they are not in the habit of communicating facts.

When once wasps had made themselves thoroughly acquainted with their way, their movements were most regular. They spent three minutes supplying themselves with honey, and then flew straight to the nest, returning after an interval of about ten minutes, and thus making, like the bees, about five journeys an hour. During September they began in the morning at about six o'clock, and later when the mornings began to get cold, and continued to work without intermission till dusk. They made, therefore, rather more than fifty journeys in the day.

Sir John had also made some experiments on the behaviour of bees introduced into strange hives, which seemed to contradict the ordinary statement that strange bees are always recognized and attacked.

Another point as to which very different opinions have been propounded is the use of the antennæ. Some entomologists have regarded them as olfactory organs, some as ears, the weight of authority being perhaps in favour of the latter opinion. In experimenting on his wasps and bees, Sir John, to his surprise, could obtain no evidence that they heard at all. He tried them with a shrill pipe, with a whistle, with a violin, with all the sounds of which his voice was capable, doing so, moreover, within a few inches of their head; but they continued to feed without the slightest appearance of consciousness.

Lastly, he recounted some observations showing that bees have the power of distinguishing colours. The relations of insects to flowers imply that the former can distinguish colour; but there had been as yet but few direct observations on the point.

Mr. McLachlan read a paper on the stages of *Oniscigaster Wakefieldi* from New Zealand, in amplification of his remarks on the insect at the meeting of the Entomological Society on March 2nd (see *ante* p. 260).

ENTOMOLOGICAL SOCIETY OF LONDON, 16th March, 1874.—Sir S. S. SAUNDERS, President, in the Chair.

Mr. E. Saunders exhibited a collection of *Buprestidæ*, chiefly from the Philippine Islands (Semper), and read descriptions of the new species. A most important fact in connection with local variation was apparently made evident by the specimens he exhibited, inasmuch as a large number of individuals (all considered by Mr. Saunders to be of the same species) from different localities in the Philippines and Moluccas, presented great discrepancies in size, and, especially, in colour.

Prof. Westwood communicated a paper on new *Lucanidæ* from Major Parry's collection.

A letter was read from Dr. Sharp, in reply to certain criticisms by Prof. Westwood in his Presidential Address at the last Anniversary.

Mr. F. Smith called attention to a popular account of the ravages of locusts in Greece, published in a London serial some years since. The statements were too vague and exaggerated to merit serious consideration.

6th April, 1874.—The President in the Chair.

The following gentlemen were elected Members of the Society, viz.:—W. Garneys, Esq., M.R.C.S., of Repton, near Burton-on-Trent; P. B. Mason, Esq., M.R.C.S., of Burton-on-Trent; and N. C. Tuely, Esq., of Wimbledon Park.

Mr. F. Smith stated that this was the time to procure male *Stylops*. He had recently captured several examples of *Andrena tibialis* at Hampstead, and had found four stylopized individuals; one had contained two males, another one male and one female, and so on. He was of opinion that the male *Stylops* was more frequent in the female *Andrena*, and he thought it was almost useless to expect to find males in *Andrena* captured after noon; he considered the males emerged immediately after the bees first appeared—in fact, the development of the perfect insects of both was almost simultaneous. The President stated that he had once captured an enormous number of a species of bee in the afternoon, at dusk, some of which contained male *Stylops*; but the morning had been wet and dull, and hence this experience did not militate against Mr. Smith's theory, for the bees might have only recently emerged. Some further discussion ensued on the habits of *Stylops*, in the course of which the President remarked that during flight the males do not move the rudimentary anterior wings (or 'elytra').

Mr. Gooch communicated a further note on the ravages of a longicorn beetle in coffee plantations in Natal. His son (notwithstanding strict search) had only been able to find very few examples of the perfect insect; but he had destroyed many plants infested with the larvæ just at the proper period. A further discussion ensued as to the question whether the larvæ of longicorn *Coleoptera* attack healthy wood or not. Mr. McLachlan stated that, according to his ideas, healthy growing wood was not, as a rule, attacked by British species of the family, though there were exceptions, of which *Saperda populnea* was a notable instance; and he remarked especially on a statement recently made by Mr. Newman to the effect that, according to 'fifty years' experience,' he (Mr. N.) had never found the larvæ of longicorn beetles to attack decayed wood, or those of lamellicorns to affect sound wood. Mr. Smith said he once attempted to sit upon a rail which broke under him, and was found to be completely rotten from the ravages of *Rhagium bifasciatum*; and the President said he had experienced the same thing with regard to a chair in Turkey, which was destroyed by the larvæ of a species of the same family. Mr. Janson thought that the larvæ of longicorns might not attack wood already rotten; but Mr. McLachlan thereupon stated that Mr. Newman's observations evidently referred to living and healthy, as opposed to dead (although otherwise sound) wood.

Major Parry communicated further descriptions of Lucanoid *Coleoptera*.

Mr. Smith read a paper on the *Tenthredinidæ* and *Ichneumonidæ* of Japan, remarking that, in his opinion, many of them represented well-known European species, although apparently distinct.



9.1873

10.1873-74

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